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CANCER OF THE OESOPHAGUS

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Cancer of the oesophagus still presents one of the unsolved problems of surgery. The deep situation of these growths, their close proximity to the great vessels—the pleura and the bronchi—and the vital importance of the oesophagus itself make surgical attack exceedingly difficult. Secondary growths are, it is true, not a very marked feature, but the explanation of this is to be found rather in the fact that the patients die before any can occur than in any want of malignancy in the growths themselves. The primary growth is often considerable in volume, but in general it is impossible during life to form any true estimate of its extent. This in itself adds greatly to the difficulty of scientific treatment, since if radium is employed it is impossible to say with any certainty where it ought to be placed, or how much should be inserted. In addition, the patient is usually an elderly individual, often in the last stages of exhaustion from starvation, and quite unable to support any attempt at radical surgery.

The first problem in all these cases is to enable the patient to swallow, and this we shall show it is usually possible to accomplish by comparatively simple means. On the other hand, the growths themselves are almost invariably squamous carcinomata, often of a baso-cellular type, such as is known to be highly sensitive to radium, and is constantly treated with success in the buccal cavity. If by some means it were possible to expose the growth to the action of gamma rays in a uniform manner, there is very little doubt that in a certain proportion of cases the growth would disappear, and in a few cases this has actually happened. The difficulties are undoubtedly immense, but they are purely anatomical in nature and should not be insuperable. Their conquest would constitute a really important advance in surgery.

The dimensions of the problem may be gauged from the fact that carcinoma of the oesophagus accounts for a proportion of all cases of malignant disease variously estimated at from 4 to 6 per cent. In this country the annual mortality from the disease is about 1,600, of whom 1,200 are males and 400 are females. But these figures, important though they must be admitted to be, in no way represent the amount of suffering involved to these unfortunate people, condemned, apart from surgical relief, to a lingering and miserable death from starvation.

Pathology

As we have seen, the disease occurs more commonly in men than in women in the proportion of about 3 to 1, but there is a curious distinction between the two sexes, both as regards the age and the site at which it occurs. In men it is a disease of later life, 90 per cent. of the cases occurring after 50, whilst it is far more common in the lower two-thirds of the oesophagus. In women it may occur at a much earlier age, and the incidence after 40 is almost constant, whilst 60 per cent. of the cases occur at the upper end of the oesophagus. Many of the cases in women, in fact, are of an entirely distinct pathology, and are more correctly described as post-cricoid carcinoma, often arising in the pharynx. Generally speaking, however, carcinoma of the oesophagus may be regarded as essentially a disease of elderly men, in which 80 per cent. of the cases occur at or below the bifurcation of the trachea.

Histologically carcinoma of the oesophagus is almost invariably a squamous epithelioma, sometimes of the basal type, but often showing a number of cell nests and a high degree of keratinization. More rarely a medullary form is seen arising from the glandular structures and consisting of rounded polygonal cells. Spreading by the lymphatics these growths naturally tend to follow these structures round the circumference of the oesophagus and to produce stenosis. Sometimes, however, they remain localized to one portion of the wall, giving rise to a fungating mass, a local induration, or a deep ulcer according to the reaction of the stroma. Thus we may find anything between a soft, sprouting mass of tissue with a profuse discharge, bleeding readily on contact, and a dense fibrous scirrhus producing a tight stricture, which can only be dilated with difficulty.

No one can have studied these tumours post mortem without being struck by their wide extent and their involvement of surrounding structures. Several inches of the oesophageal wall may be entirely destroyed and replaced by growth, and we have had cases where over a long period the patient has swallowed through an intubated mass of carcinoma. The mass of growth may, indeed, protect the surrounding tissues, but ultimately these are opened up so that direct perforation may occur into the mediastinum, the pleura, a bronchus, or even the aorta. The usual termination arises from perforation of the respiratory tract and the rapid development of an acute septic pneumonia, although in a few instances the opening of a large blood vessel closes the scene.

The lymph glands along the oesophagus are usually involved, but distant metastases are unusual, simply because the patient dies before they can occur. There is a curious tradition that carcinoma of the oesophagus is a disease of low malignancy: we regard it as one of the most highly malignant tumours appearing in elderly people, only failing to give rise to secondary deposits because it destroys the individual by its local extension.

Clinical Course

In the great majority of cases the first symptom in carcinoma of the oesophagus is a steadily increasing dysphagia. Occasionally the onset is so abrupt that the patient thinks that some foreign body, such as a fish bone, has stuck in his throat, but usually it is gradual in onset and without remission. Solids are, of course, first affected, but in most cases the slowness with which

liquids can be swallowed will attract attention at an early stage, and this difficulty is often accompanied by regurgitation of unaltered food. The inconvenience is increased by the secretion of quantities of viscid mucus, which fills the oesophagus and impedes swallowing. Sometimes when this has been ejected as a quantity of white froth swallowing becomes comparatively easy. We have come to regard this white froth as a diagnostic feature of the first importance. In the later stages it is blood-stained and foul, indicating a fungating growth with extensive ulceration, and producing a marked fetor of the breath.

In a few cases where the growth is at the lower end of the oesophagus the symptoms are rather those of flatulent dyspepsia, a feeling of fullness after meals, and the eructation of gas. These symptoms may suggest gastric carcinoma, and, indeed, in some of these cases the growth has arisen in the stomach itself and invaded the cardiac orifice. The same symptoms may, however, appear with true carcinoma of the oesophagus. Pain is not usually an early symptom, but a reflex spasm which results from attempts at swallowing may lead to acute discomfort. In the late stages, where the dorsal roots, or even the vertebral bodies, may be involved, pain may be a very severe feature. Hoarseness and aphonia may occur from involvement of the recurrent laryngeal nerves, and in a few instances these have actually been the first symptoms of the disease.

Involvement of the respiratory passages gives rise to by far the most important group of secondary symptoms. Irritation of the upper passages produces a profuse secretion of a tenacious stringy mucus, which causes great annoyance, and often a constant irritable cough. In late stages involvement of the tracheal wall may give rise to respiratory embarrassment, and we have actually seen a nodule of growth perforating the trachea and producing obstruction. More common, however, is the formation of a fistula into the trachea or bronchus, or into the lung itself, followed by the development of a septic pneumonia as a terminal event.

Wasting occurs from pure starvation, and, in contrast with carcinoma of the stomach, the patient, far from having a loss of appetite, suffers severely from hunger and thirst. That starvation is the cause of the wasting is shown by the rapid improvement which occurs when the patient is enabled to swallow or is fed by a gastrostomy. In the later stages, on the other hand, if the patient is unable to swallow, the general discomfort, the constant pain, and the persistent cough have a very serious effect upon his condition.

Examination of a Case

Of the methods of examination available we shall only describe radioscopy and oesophagoscopy, for the passage of bougies is both useless and dangerous.

X-ray examination, in our opinion, entirely eclipses any other method. It is extremely simple and it is absolutely safe. In every case it will indicate the level of an organic obstruction, whilst in the great majority it will, if properly conducted, give indisputable evidence of the nature of the lesion. The picture furnished by a carcinoma is usually so characteristic that a mistake is scarcely possible. The patient should stand with his left arm above his head facing the screen obliquely, so that the rays pass through the thorax from left posterior to right anterior. In this way the spine, heart, and great vessels are avoided and the clearest picture is obtained.

He now swallows a thick emulsion of barium sulphate of the consistency of a viscous syrup. The emulsion is seen to reach the obstruction and to fill up the lumen of the oesophagus above it. Except in the rare cases when the obstruction is absolute, it will now be seen to trickle slowly through it and to fill up beyond it the longitudinal folds in which the mucous membrane of the empty oesophagus normally lies. In the case of a malignant stricture a moderate degree of dilatation may be observed above, the shadow will terminate in a cone pointing downwards, and from the apex of the cone a fine twisted stream of barium will be seen making its way through the tortuous vagaries of the growth. A film will show these details even more clearly than the screen, and will supply permanent objective evidence of the nature of the obstruction.

The ordinary barium examination, carried out in an upright position, only gives information as to the condition of the oesophagus above the stricture. We owe to Ledaux of Brussels the ingenious suggestion that the patient should be made to swallow a certain quantity of barium into the stomach and then be examined on a couch in a high Trendelenburg position—in other words, standing on his head. If the patient now attempts to swallow, the cardiac orifice opens synchronously as a part of the normal mechanism, and the barium flows back into the lower portion of the oesophagus. In this way the extent of the stricture can be accurately defined.

Finally comes direct examination with the oesophagoscope, undertaken with a view to discovering the character of the growth and its possibilities of treatment, rather than for the mere diagnosis of malignant stricture. The information obtained may be of very great value, but it is not a manipulation to be undertaken lightly, for except in expert hands the instrument is by no means free from danger. With the patient lying flat, and the head slightly extended and deflected to one side, the oesophagoscope is inserted at the angle of the mouth and passed into the oesophagus under the control of vision. The passage through the upper sphincter is sometimes difficult, but once it is overcome the whole oesophagus can be explored with ease. In its whole thoracic course the lumen will be seen as a narrow transverse slit which opens and closes with each respiration. On reaching the aperture in the diaphragm the slit becomes anteroposterior and ceases to expand, whilst immediately beyond this the cardiac orifice of the stomach appears as a rosette of fine mucous folds. On entering the stomach itself the large folds of gastric mucosa are seen, and there is usually a gush of fluid into the instrument. Manipulations must be carried out with the greatest care, since the oesophagus itself is always fragile, and it may be deeply ulcerated in the presence of a malignant growth.

The lumen of the normal oesophagus appears on direct examination as a transverse slit which opens and closes with each respiratory act. If the wall is infiltrated these movements cease, whilst dilatation of the lumen above the stricture will be immediately obvious. A puckered stricture, a fungating mass of growth, or an ulcerated area can readily be observed, and occasionally it may be practicable to remove a fragment of growth for section, though we do not advise this as a routine procedure. But the chief use of direct examination is for dilatation of the stricture, to which we shall later refer.

Treatment of Oesophageal Carcinoma

It is only rarely that the question of radical removal of a carcinoma of the oesophagus can even be raised, and in spite of a few brilliant results it seems to us most unlikely from the pathological considerations which we have already described that it can ever become a practical method. The depth at which the oesophagus lies, the fragile nature of its wall, which possesses neither a submucous nor a peritoneal coat, the complexity of the structures by which it is surrounded, and the age at which the disease occurs are all opposed to a direct attack, and one may be sufficiently grateful if one can relieve the dysphagia. For this we have three methods

at our disposal: dilatation, intubation, and gastrostomy. The last is, of course, a confession of surgical failure, but it by no means follows that in some cases it may not be the soundest practice. We would only say that if it is to be performed this should be done at an early stage, and not left until exhaustion has increased its danger and diminished its utility. Our own practice is to attempt to relieve the dysphagia directly, and, if this fails, to perform gastrostomy, although in certain cases where the patient's condition has been desperate we have first performed gastrostomy in order to save his life.

Dilatation should only be attempted under the direct control of the oesophagoscope. We first pass a fine flexible bougie on the end of a long steel wire, which does not interfere with vision. Over this are passed tubular dilators of increasing size, formed of short cylindrical rods of aluminium, with an axial hole which slides easily over the wire guide. The dilators rise by millimetres from 4 to 11 mm. in diameter, and by passing them in turn it is usually quite easy to dilate the stricture up to the full size. As the dilator is passed through and clears the stricture, or as it meets it on its return, a fair estimate of its length may be obtained. Even with these dilators it is, of course, necessary to proceed with great caution and gentleness, and to remember the extreme fragility of the oesophageal wall.

Dilatation is usually followed by immediate relief of the dysphagia, but this is likely to recur in a few weeks' time. To avoid this we devised, some years ago, a flexible tube formed of a spiral of German silver wire, with an expanded upper end and a twisted oval section which prevents its upwards displacement. These tubes are now in general use, and from their extreme flexibility they are readily tolerated, the patient being usually quite unconscious of their presence, whilst the large lumen allows ordinary food to pass. With reasonable care in mastication or in the preparation of food the tube should not become blocked, and we have had a large series of cases in which the patient was able to eat a dinner without difficulty. There was a slight difficulty in the introduction of these tubes, which we have now overcome by a very simple device. It was found that even after full dilatation the lower edge of the tube tended to catch on the end of the growth, and refused to pass through the lumen. This can be entirely avoided if before introduction a small cone of gelatin is inserted into the end of the tube: a glycerin suppository of suitable size answers perfectly. The facility of introduction produced by this simple device is very remarkable, and the gelatin dissolves in a few minutes and passes on down the oesophagus.

Treatment by Radium

These methods aim solely at the relief of dysphagia and not at the cure of the disease. So far as can at present be seen it is only with some form of radiation that we can hope to effect this, and we have at our disposal radium and *x* rays.

Of the methods of radium treatment which have been adopted the most direct is by the insertion into the lumen of the tumour of a sound containing radium. After exact measurements have been made of the position and extent of the stricture, a rubber sound is prepared containing within its cavity a series of radium tubes each 2 cm. in length, filtered by at least 1 mm. of platinum, and each containing 10 mg. of radium element. Three or four such tubes may be used according to the length of the stricture. The sound should be made of rubber, containing no metal, and should have a wall of at least 2 mm. in thickness, and it is convenient to block the lower end of the sound with a wooden or vulcanite rod 2 cm. in length. The sound is passed until a mark made upon it registers with the teeth and indicates that the radium is in position, and it is then brought round the cheek and secured either by plaster or by a string passed round the ear. The tube should be retained in place for forty-eight hours, and this treatment should be repeated on three occasions in all, so that the total dose of 30 to 40 mc.d. is received.

More comfortable for the patient when it can be adopted is the method suggested by Madame Simone Laborde. A rubber sound is prepared, as already described, but only of slightly greater length than the region to be treated. The sound is attached to a stout thread and is simply swallowed by the patient. Its progress is noted on an *x*-ray screen and the thread is secured to a tooth or to the cheek when the sound is correctly placed. The weight of the sound and the platinum it contains assists its progress and prevents its regurgitation. The sound can be left in place for six or eight days provided a gastrostomy has been performed, but the dose received ought not to exceed 30 to 40 mc.d. In view of the fragility of the oesophagus, and our ignorance of the extent of the growth, a larger dose involves too great a risk of perforation. If no gastrostomy has been performed it is scarcely possible to retain the tube in position for more than eighteen hours, but it may be replaced after a day's rest and the treatment continued until a full dose has been received. The procedure, of course, assumes a permeable stricture into which the sound can pass, but given this condition very satisfactory results have been obtained, although so far only of a temporary nature.

Where intubation with my own spiral tube can be effected, this may very conveniently be used as a support for radium. A narrow gold tube, about six inches in length, is filled with radon gas. The ends are sealed, and one end of the tube is wound into a circle half an inch in diameter to form a ring to which a thread can be attached. This is lowered into the spiral tube, the ring resting on its upper aperture. The emanation tube does not interfere with the passage of liquids through the intubation spiral, and is easily withdrawn at the end of forty-eight hours.

A method which we have used extensively is the introduction of seeds by means of the oesophagoscope into the substance of the growth itself. With a large oesophagoscope a full view of the upper surface of the growth is easily obtained, and it is then quite easy, by means of a special introducer, to insert seeds into the substance of the growth to any depth that may be desired. We have made a practice of introducing two rings of seeds at different levels, and in this way it can be shown on radiographic examination that a fairly even distribution of the seeds has been obtained. It might seem that the proceeding was essentially dangerous, since it is impossible to guarantee that the seeds will not enter the mediastinum or the surrounding structures, but in well over a hundred cases we have never had any trouble attributable to this cause. Perforation of the oesophagus under normal conditions would produce certain death from infection of the mediastinum, but it must be remembered that the seeds are necessarily sterile and that no organism can grow in their neighbourhood. In a few cases a fairly satisfactorily result has been obtained, the patient recovering his power of swallowing and being restored to a condition of health. In no case, however, have we succeeded in effecting a cure, all the patients having died within a year. If some means could be discovered of defining the limits of the growth it is possible that much better results could be obtained.

So far as we are aware, no attempts have been made, at least on any scale, to treat carcinoma of the oesophagus by accurately directed radium beam radiation. From the depth at which the oesophagus lies it is obvious that a very large source would be required, but, apart

from this, there would not appear to be any considerable difficulty, for with reasonable care the heart and lungs are not likely to suffer from ill effects. On general grounds one would expect that such a method ought to produce more satisfactory results than any of those hitherto employed, since the growth with which we are dealing is certainly radio-sensitive, and the only real danger is that by too energetic a dose we may produce sloughing of the tissues and perforation. Combination with internal radiation from a tube or from seeds would seem to be a rational method, but so far it has not been developed.

Deep X Rays

Results of great interest have recently been obtained by Levett using deep *x* rays, the radiation consisting of very hard rays and being limited to a narrow field, including seven inches of the oesophageal wall. It is still too early to speak with any certainty of the results secured, but in a few cases at least it would seem that complete healing had been obtained without secondary stenosis. Hitherto the disadvantage of *x*-ray treatment in these cases has been the intensely depressing effect upon the patient, due apparently to the effects of the *x* rays upon the surrounding structures, and perhaps to the absorption of products so formed. So severe have been these effects that radiologists of the brilliant achievement of Coutard have entirely abandoned the method. If, however, these secondary effects could be avoided by skilful adjustment of the apparatus, the method would appear to have definite possibilities, and it is certainly one which should be explored to the full.

Another method which we are at present ourselves investigating is the application of radon to the outer surface of the oesophagus after exposure by transthoracic exploration. It is a very remarkable fact that even in elderly subjects the lower half of the oesophagus can be fully exposed by the transthoracic route apparently without risk and with only trivial inconvenience to the patient, far less in fact than is associated with an ordinary laparotomy. Theoretically, if a growth of the oesophagus could be surrounded by a group of radon seeds there is little doubt that the growth would entirely disappear and that healing of the mucosa would occur. The mechanical problems involved are, however, difficult to solve, and in spite of a few encouraging examples we can still only regard the method as in the experimental stage.

Conclusions

It will be seen, then, that for the present we regard the relief of dysphagia as the one object to aim at in the treatment of carcinoma of the oesophagus, and we consider the introduction of a spiral tube as the method most likely to achieve this in practice. Our personal experience of the method now extends over some fifteen years, and includes upwards of 300 cases, whilst the method is in general use by many other surgeons. We consider, however, that every attempt should be made to develop the method of radiation both by radium and by *x* rays, since although both of these are still in the experimental stage they are probably the only methods to which we can look for any real prospect of curing the disease.

ADOLESCENT AND SENILE KYPHOSIS*

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(With Special Plate)

It is about time that opportunity was given for the ventilation of ideas upon the difficult and puzzling subject of adolescent kyphosis. Though the literature is now abundant, most of the work seems to have been done by American, French, German, and Italian authors, and very little by Englishmen. It was not until Beadle[1] and Ross-Smith[2] published their papers in 1931 on the intervertebral disk that much thought was given to this structure in Great Britain, or to the possible association of its pathological conditions with adolescent kyphosis. It seems strange that this should be so, for it cannot be doubted that the condition has long been recognized here by orthopaedic surgeons and those working in institutions for surgical tuberculosis. In fact, one of its chief claims to recognition is that adolescent kyphosis, on account of its occasional combination of pain, deformity, and peculiar *x*-ray appearances, constitutes one of the most important differential diagnoses from spinal caries. Sorrell[3] says that 25 to 30 per cent. of cases sent to his hospital with a diagnosis of spinal caries turn out to be cases of adolescent kyphosis.

Clinical Picture

Obviously, unless one has worked on this comparatively rare condition for a long time, it is difficult to collect a sufficient number of cases to give any valuable statistics on the relative frequency of any particular type of onset. I shall therefore content myself by merely enumerating the varieties.

Adolescent kyphosis starts between the ages of 12 and 17, normally a period of active growth, and is said to be more common in boys than in girls. The deformity may become exceedingly unsightly (Fig. A), but the active process tends to cure itself spontaneously in the course of eighteen months. If treatment is carried out early the deformity may even be lessened, but it is doubtful if it can ever be entirely corrected. In my small group of cases, and from a perusal of the literature, I think I can detect five different classes.

1

The onset is insidious. Kyphosis gradually develops, but the patient himself is unaware of it. He is usually brought up for advice by his parents, who are alarmed at the deformity. There is, however, no pain—at most a sense of fatigue at the end of the day or after exercise, but often not even that. There may be no history of trauma, and he appears to be in perfecly good health and of normal development. The posture is poor on account of the round back, but the musculature is good and there is no spasm. The kyphos, however, cannot be corrected either actively or passively, and there is often a certain amount of rotation of the vertebrae. The hamstring muscles may be short.

2

In this group the onset is also insidious, but the patient belongs structurally to an altogether different type. The child is tall and lanky, and there may be a history of debilitating illnesses in childhood following rapidly one upon another. The musculature is inadequate, and the posture is very bad. He complains of backache, which appears, however, to be due to fatigue. In him, too, the movements of the spine are not restricted by spasm, but the hamstring muscles are markedly contracted. He belongs, in fact, to the type of child who acquires postural deformities, but in whom the kyphosis becomes fixed earlier than usual.

3

In this class are included those cases in which the onset is fairly sudden. There may be a history of a fall a month or so previously, or a period of exceptional activity at work or at play. Scheuerman,[4] who first drew attention to the condition in 1920, was so impressed by this that he called it

* Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Bournemouth, 1934. The author's section on Senile Kyphosis has been omitted for reasons of space.

"apprentice kyphosis." Pain is a very definite feature, and there is said to be sometimes a rise of temperature. The pain is never very acute, but it is sufficiently severe for the patient to seek advice on account of it. The movements of the back are restricted by spasm, and the spinous processes are said to be tender on pressure. The symptoms disappear with rest, and the kyphosis may even improve a little.

4

In this type the patient is definitely overgrown. One of my cases, a boy of 15, was 6 ft. 1 in. These cases, however, differ from those in Class 2, inasmuch as their musculature is not so poor and they exhibit other signs of endocrine disturbance. Albanesi has collected a number of cases in which changes are seen in the sella turcica and also in other parts of the skeleton, suggestive of an endocrine imbalance.

5

Some cases have been described as coming on rapidly after an acute pneumonia. Albanesi[5] refers to this, and Edelstein, who has written on the subject, has told me that he quotes one such case.

Although the mode of onset and the type of patient may be varied, there are certain clinical features common to all classes.

1. The kyphosis is always round and never angular.
2. The kyphosis is always in the lower dorsal region.
3. The *x*-ray appearances are constant and characteristic.
4. The hamstring muscles are, I believe, usually short.

Scheuerman and the French school lay great emphasis upon pain in these cases. In fact, they have termed the condition "painful kyphosis of adolescence." I do not think that this is by any means a constant feature, and if we were to restrict ourselves in this discussion to those cases alone which have pain I feel sure that we should overlook a lot of important details.

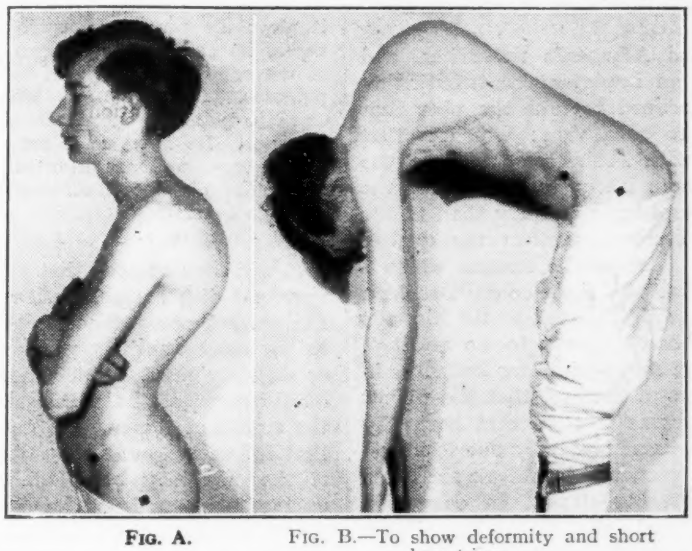

FIG. A. FIG. B.—To show deformity and short hamstrings.

X-Ray Appearances

In a fully developed case, where the active process has ceased, the vertebrae from the seventh dorsal to the first lumbar (often fewer, but rarely more) are wedge-shaped. The intervertebral disks are narrowed, and the vertebral borders, above and below, are sclerosed with punched-out areas in them, looking moth-eaten. In the early stages the point that Buchmann[6] lays great stress upon is that the adjacent vertebral borders are indistinct and irregular, and even the whole vertebral body may become hazy. The epiphyseal points may be delayed in their appearance, and when they do appear they are denser than normal. As regression occurs the definition of the vertebral bodies becomes clearer and the epiphyseal plaques seem to be fragmented and dense. It is only in the later stages, when the whole of the plaque has become sclerosed, that the typical punched-out conformation can be seen.

Aetiological Factors

Whitman,[7] in discussing coxa vara, says that the condition is due to a discrepancy between strain and stress on the one hand and the capacity of the bone to bear it on the other, and it will be useful in reviewing the theories of aetiology of adolescent kyphosis to divide them into these two main headings.

Factor of Weight-bearing Capacity

The conditions which diminish the capacity of the bone to bear weight are: (*a*) circulatory ; (*b*) infective ; (*c*) endocrine or metabolic disturbance ; (*d*) physiological weakness ; (*e*) hernia of the intervertebral disk (Schmorl's theory). I will now discuss these seriatim.

Circulatory

Owing to the fact that specimens of Perthes's disease show that the bone nucleus has undergone a necrosis, some authors seek to explain, not only Perthes's disease, but most of the other osteochondritides and epiphysites as being due to embolism. So far as the back is concerned, however, it is difficult to see how emboli could reach simultaneously a limited number of vertebrae over a certain area of the spine at a certain age. It appears to me to be a very far-fetched theory.

Infective

Despite the fact that it is exceptional for organisms to be found in any of these epiphyseal conditions, the infective theory still has a large number of supporters. Those who favour this view do so because they think that it best explains the radiographic appearances, but I find it difficult to believe that infection which is sufficient to cause destruction of bone can occur without pain or occasionally giving rise to abscess formation. Apart from the jaw, I do not know of any other situation where there is chronic infection in bone without pain. It is upon this question of pain where my experience, as far as it goes, differs from that of other authors. There are some cases of adolescent kyphosis where pain is a prominent symptom and even a rise of temperature has been recorded ; but these are few, and in most cases where pain exists it is not of an inflammatory nature.

If infection does play a part at all, it must be of the very mild and transient kind which gives rise to thromboses, similar to spontaneous thromboses elsewhere in the body. Such disturbances of the circulation weaken the bone, and any subsequent changes are of a secondary nature owing to the peculiar mechanical arrangements that prevail in the intervertebral disk, and not to the destructive action of the organism itself. This infection would have to be of a very special kind, having an affinity for the blood vessels of a limited number of vertebrae, over a certain area of the spine, at a particular age! But what explains those cases of adolescent kyphosis that come on acutely during the course of a pneumonia?

Thanks to the writings of Watson Jones, spontaneous dislocation of the atlas, associated with an acute or chronic pharyngitis, is now a well-established, though rare, clinical entity. The hyperaemia produced by the pharyngitis causes decalcification of the bone and slackening of the ligaments, permitting a dislocation ; but it must be noted that in this region no intervertebral disks exist. I do not think it is straining the imagination too far to presume that a similar condition might exist lower down the spine.

Supposing, during the course of a bronchopneumonia, the mediastinal glands were to become inflamed (as they undoubtedly do): this might produce decalcification of the vertebral bodies, and any minor traumata during the course of nursing, or maybe a paroxysm of coughing, might result in subchondral fractures. A dislocation, of course, could not arise because of the presence of the intervertebral disks. One of my colleagues has promised to *x*-ray the dorsal spine of every child convalescent from bronchopneumonia, and in the course of time I confidently anticipate to be able to report that the sequence of events I have visualized does occasionally occur. To sum up then: infection, in the sense of invasion by organisms, though it may be responsible for some cases, is probably a very rare cause.

Endocrine and Metabolic Disturbances

Late rickets has, at one time or another, been held responsible for this and all other epiphysites. Several cases were reported in Vienna during the famine stages of the war, but in these the disturbances were more widespread, and it can be assumed not to be an important factor in normal times.

I have already mentioned Albanesi's researches, and I believe his article to be an important contribution to the literature, but I feel inclined to take the view that Whitman takes in regard to coxa vara: which is that where coxa vara coexists with Fröhlich's syndrome the cause of the slipping is more likely to be due to the abnormal weight the epiphyses have to carry than to the fact that the endocrine disturbances affect the quality of the bone or its growth. One of the reasons which I think support this view is that only those epiphyses which have to withstand a shearing strain, such as the hip, the knee, and the dorsal vertebrae, appear to be affected. There are no changes in the ankle-joint, for instance, in Fröhlich's syndrome, in spite of the fact that the weight borne by the ankle-joint is greater than that borne by any of the other joints: this is undoubtedly due to movements of the subastragaloid joint, which protects the lower tibial epiphyses from a shearing strain. In connexion with this, it is interesting to note that Buchmann alludes to a case where adolescent kyphosis coexisted with changes in the epiphysis of the iliac crest. At first sight this might appear to be a case of multiple epiphyseal lesions of the endocrine or metabolic variety, but when one reflects that many powerful ligaments are attached to the posterior part of the iliac crest, in order to control the rotatory movements of the sacrum, the occasional combination of what one might call a "pulled" epiphysis of the ilium with adolescent kyphosis supports rather than refutes the strain theory.

Physiological Weakness

Murk Jansen[8] has enunciated the theory of the vulnerability of rapidly growing young cells, and it would seem from this that during periods of rapid growth the bones are weaker. Generally speaking, there are two periods in which growth is particularly active—between 3 and 6, and between 12 and 17 years. During these two periods there may be said to exist a state of physiological weakness of the bones. Supposing that during either of these stages the back was subjected to undue strain or varying degrees of trauma, disturbances of growth might be expected to arise. This point will be referred to again later, in discussing short hamstring muscles.

Hernia of Intervertebral Disk: Schmorl's Theory

Thanks to the writings of Calve,[10] Gallrand,[11] and Beadle, the ideas of Professor Schmorl[9] are gradually becoming better known. He has collected and examined more than four thousand spinal columns, and his views are of considerable interest and practical importance. He was the first to point out that the substance of the intervertebral disk might prolapse into the vertebral body.

The intervertebral disk is a complex structure, and consists of the nucleus pulposus, the cartilage plate, and the annulus lamellosus. The *nucleus pulposus* is a remnant of the notochord. It is a semi-fluid structure, and in normal circumstances is under very considerable pressure, estimated by Petter[12] as 30 lb. It varies in its position according to the level of the spine, being placed more anteriorly in the lumbar than in the dorsal region; and it is capable of a certain amount of shifting, depending on the position of the vertebrae above and below it. Its function is to act as a water-cushion and also as a pivot upon which the movements of the vertebrae take place. Being a water-cushion, it distributes the pressure equally over the whole surface of the bones, and prevents any one part of the bone bearing more weight than another. If such a mechanism did not exist—for instance, in the dorsal region, where there is already a normal kyphosis—the anterior parts of the bodies of the vertebrae would bear most of the weight and, according to the laws of growth, would eventually become wedge-shaped. The *cartilage plate* is a layer of hyaline cartilage attached to the surface of the vertebral bodies. On its bony aspect it plays the part of an epiphysis, and on its intervertebral aspect its chief function is to prevent the pressure atrophy of the subjacent bone, due to the turgidity of the nucleus pulposus. The *annulus lamellosus* serves to attach the two cartilage plates to one another, thus encapsuling the nucleus pulposus. Its fibres arise from the matrix of the cartilage plate above, and are inserted into those of the vertebrae below, and also into the fronts of the bodies of the vertebrae and the anterior longitudinal ligament. It is an extremely strong structure, and has a fair amount of elasticity.

It will thus be seen that all the structures of the intervertebral disk are subservient to the preservation of the nucleus pulposus. Since this latter is of great importance to the spine anything which interferes with its turgidity or mobility must be detrimental. During the course of development of the vertebrae, that part of the body in the region of the nucleus pulposus may be defective, so that it becomes, so to speak, encased. All the elements of the disk may be intact and healthy, but since the nucleus pulposus is rendered immobile it is not available for its weight-distributing function, and consequently the vertebrae tend to become wedge-shaped, and kyphosis results. Kyphoses of this nature, though they do not show the typical *x*-ray appearances, ought to be included in this review of adolescent kyphosis.

The point upon which Beadle lays great emphasis is that, when viewed phylogenetically, the erect posture is a comparatively recent event, so that the spine as a whole has not yet completely adapted itself to its new function—that of weight-bearing. As a result of this, certain elements of it are prone to premature degeneration. That part of the intervertebral disk which is apparently most vulnerable is the cartilage plate. Minute rents can frequently be seen in it, rents which are assumed to be caused, not by any one gross trauma, but by the wear and tear of an ordinary life. Where these rents appear, the nucleus pulposus, owing to its turgidity, insinuates itself and gradually prolapses into the bone. Schmorl has found evidence of these herniae in as many as 38 per cent. of all spines examined. They are always in the lower dorsal and upper lumbar regions, and are of three kinds. The commonest is a vertical protrusion of the nucleus pulposus into the vertebral body; occasionally, if the bone is resistant, the hernia can worm its way anteriorly between the cartilage plate and the bone; and, finally, the herniae may be in front of the nucleus pulposus and consist of the disk substance only.

Schmorl considers that a large number of cases of adolescent kyphosis are the result of these hernial protrusions. Those who support this view explain the radiographic appearances by assuming that the presence of a

foreign body in the bone produces hyperaemia, with its consequent decalcification. Hence the *x*-ray photograph of an early case shows lack of definition. But, as reaction occurs, the bone becomes sclerosed in order to prevent further incursions of the hernia, and it is only when this is completed that the typical moth-eaten conformation can be seen in the *x*-ray film. Furthermore, the hernia theory has some experimental support. Keyes[13] and Compere[14] very carefully injured the cartilage plate in a dog, and found that disk herniae invariably followed. Mauric[15] quotes the observation of Meyer, who was able to get a necropsy of a case showing typical *x*-ray appearance, and found that the indentations corresponded to a discal hernia. It can therefore be taken for granted that these herniae do exist.

Examination of Schmorl's Theory

The first criticism which comes to mind is that, if discal herniae are so common as to occur in 38 per cent. of spines, why is adolescent kyphosis such a comparatively rare condition? The answer seems to be that the point of chief importance is the age at which these herniae arise. If they appear in later life, in the line of the nucleus pulposus, which is the commonest site, the secondary changes in the spine are those of an osteoarthritic nature, owing to the loss of function of the nucleus pulposus; but, if they appear earlier they give rise to abnormalities of growth. Schmorl is under the impression that these herniae are of congenital origin, or, alternatively, that there is a congenital weakness of the cartilage plate sufficient for it to undergo early degeneration. Anyone who has seen Schmorl's pictures, or read Beadle's account, cannot doubt that congenital abnormalities of the disk do exist, but I am not aware of any developmental reason why the lower dorsal and upper lumbar regions—the parts most affected in adolescent kyphosis—should be more prone to congenital malformation than any other. Also, I do not see the necessity of invoking the aid of such a hypothesis as a predisposition to premature degeneration of the cartilage plate in order to support Schmorl's theory, because that part of the spine is the most vulnerable and most liable to flexion traumata in any circumstance.

Those who oppose Schmorl's hypothesis do so because they think that it does not explain all the radiographic findings. We have already seen how some of them—namely, the early decalcification and later sclerosis—can be explained; but it is more difficult to account for the late appearance, the large size, and the marked opacity of the centres of ossification of the epiphyseal ring. Too much stress should not be laid upon the time factor in the appearance of these centres of ossification, because it is known to vary. But there is no doubt that when they do appear the *x*-ray picture is very similar to the changes seen in osteochondritis elsewhere. In all these latter the density is said to be due to necrosis of the bony nucleus. There is one important distinction, however, and that is that in adolescent kyphosis the dense centres are larger than normal, whereas in osteochondritis they are invariably smaller. Furthermore, I think that in adolescent kyphosis these centres fuse with the body of the vertebra earlier than usual—a fact that can hardly be reconciled with an idea that presupposes death of the bone.

It is customary, when one sees radiographic changes in epiphyses, to regard them all as pathological, but the point I would like to make is that we do not know what changes, if any, take place in circumstances of a reactive nature which demand the rapid appearance and rapid fusion of an epiphysis. I am inclined to regard the changes in the centres of ossification of the epiphyseal ring as evidence of reaction against the invasion of a hernia, as an attempt to hasten its fusion with the body in order to offer a greater obstacle to the incursion of a peripherally placed hernia.

To sum up, then: though some cases of adolescent kyphosis may result primarily from congenital abnormalities of the intervertebral disk, I think it is more reasonable to regard the discal herniae as secondary changes and as the inevitable complication of any process which weakens the cartilage plate or the underlying bone. This weakness may occasionally be caused by the variety of conditions already referred to, but the most important factor is stress and strain due to an abnormally heavy body, and more especially oft-repeated minor traumata.

The Effect of Stress and Strain

The factors which increase strain and stress are: (*a*) body weight, (*b*) trauma, and (*c*) short, hamstring muscles. Most of the theories so far examined presuppose the existence of an exciting cause—and that is generally held to be stress and trauma. Reference has already been made to the influence of body weight in discussing the endocrine theory, and there is no need to enlarge upon the accident of a strong flexion force in a growing child as a cause of injury to the spine. But since the history of trauma often cannot be elicited, one must look for another explanation.

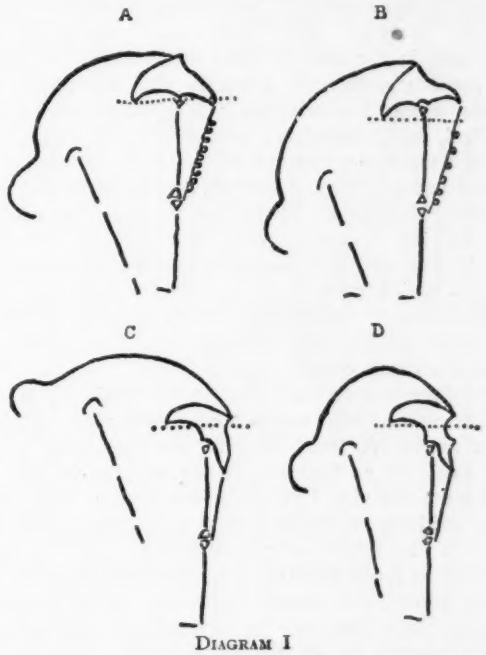

DIAGRAM I

A, Normal position for toe-touching. Note that contour of the back is regular. Anterior superior spine of the ilium on the same horizontal plane as the top of the great trochanter. Spring in the hamstring muscles not stretched.

B, Normal back flexed beyond comfortable limit. Note that the contour of the back is unchanged. Anterior superior spine below the level of the great trochanter. Hamstring spring stretched.

C, Short hamstrings. Note that the anterior superior spine is above the level of the great trochanter. Contour of the back is normal.

D, Short hamstrings. Back flexed beyond normal limits, showing the increased convexity of the lower dorsal and lumbar regions.

When a normal child (Diagram I—A, B, C, D) stoops down to touch his toes with the knees extended the contour of the back is regular and graceful, and the hamstring muscles are not tight. In this position the back itself is locked in full flexion, but the pelvis is not fixed, as there is some give in the hamstring muscles. Therefore, if a force falls upon the back, making it flex further, the hamstring muscles act as a spring (Plate, Figs. 1 and 2). On the other hand, if the hamstring muscles are tight, then in the stooping position not only is the back flexed to its maximum but the pelvis is fixed, for there is no spring action in the hamstring muscles. Since the back

of a child, even when fully flexed, is more resilient than the contracted muscles are stretchable, any force falling on the back will tend to hyperflex the spine and throw all the weight on the anterior parts of the bodies of the vertebrae (Figs. 3 and 4).

Influence of Hamstrings on the Back

Several years ago, when treating a child for bad posture by the usual method of remedial exercises, I noticed that it gradually got worse. Rotation of the lumbar vertebrae, which had not existed, became apparent. On further examination I found that the hamstring muscles were short—more so on the side of the rotation. With the kind permission of the medical officer of health and the school authorities of the L.C.C. I have examined a large number of school children for two years in succession with the idea of determining what proportion of them had short hamstring muscles. I found that it was common, but rarely existed before the age of 6. It was more frequently unilateral than bilateral, and in the former there was invariably rotation of the lumbar vertebrae towards the shortened side. Sometimes, even, the rotation was generalized. It was rare to find both hamstring muscles equally short, but when it did exist the contour of the back in flexion was much more curved (Figs. 5 and 6), the point of the greatest convexity being the lower dorsal and upper lumbar regions. In the bilateral cases, however, it was more common to find one side shorter than the other—usually the left—in which case there was always rotation of the lumbar vertebrae to the shortened side (Figs. 7, 8, and 9), and the point of greatest convexity in the contour was always in the lower dorsal region.

It was interesting to note that in the majority of cases the shortening of these muscles was transient. Children who were unable to touch toes by six inches or more in one year could do so the next, while some who could the first year were not able to the following year. This latter was most evident in children who had grown rapidly in the interval. In a smaller proportion of cases there was no tendency to improvement, and this was most marked n the long, lanky, flat-backed child, but not invariably so.

These are facts that can be verified by anybody who takes the trouble to do so. The point of interest is whether they have any bearing on the subject under discussion. I think they have. It seems to me that the back of a child which has not got the protective spring action of the hamstring muscles must be regarded as a vulnerable back. The inability to touch toes is in itself not important, but it is the loss of the spring action, due to the shortness of the hamstring muscles, that matters. It may be argued that bending down with the knees extended, a position in which the spring action is most necessary, is not a common attitude for a child to adopt ; but one must remember that sitting up from the recumbent position is the equivalent of it (Figs. 10, 11, and 12), that it is frequently assumed when playing leap-frog, and that, most important of all, toe-touching is one of the routine exercises in the gymnasium classes at school.

I have seen children who are unable to touch their toes being exhorted to do so by a series of sudden jerks. The practice of using the back of a growing child as a lever (and a flexible one at that) to stretch the comparatively unstretchable hamstring muscles is a pernicious one. Such movements must cause considerable pressure on the front of the bodies of the vertebrae, and, as judged from the contour, it is upon the lower dorsal and upper lumbar regions that the brunt of the force falls. If the force is sufficiently powerful and frequent it is not difficult to conceive of minor injuries, such as small crush fractures or subchondral haemorrhages, occurring in the region of the epiphyseal plaques. Furthermore, and most important of all, when one reflects that the annulus lamellosus arises from the matrix of the cartilage plate (Diagram II—A and B), forced movements of the annulus lamellosus might easily cause those mysterious fissures in the cartilage plate which are known to be the precursors of discal herniae. Owing to the fact that there are no nerve endings in the intervertebral disks, these minor injuries do not give rise to pain, and no opportunity is given them to repair. This seems to me to account for the fissures in the cartilage plate more satisfactorily than to imagine that the plate itself is a structure which sometimes has a congenital predisposition to premature degeneration.

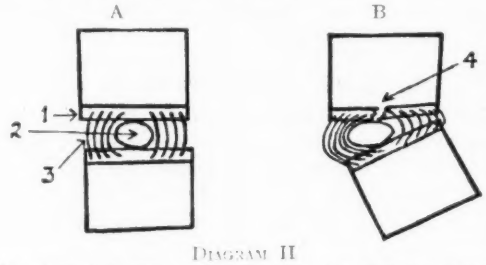

DIAGRAM II

To show the origin of fissures in the cartilage plate

A, In the normal resting position. Note the fibres of the annulus lamellosus arising from the matrix of the cartilage plate.

B, Showing forcible flexion. The nucleus pulposus is pinched as a cherry-stone between finger and thumb, causing strong traction on the posterior part of the annulus lamellosus, which pulls on the cartilage plate, causing it to rupture.

1 = Cartilage plate. 2 = Nucleus pulposus. 3 = Annulus lamellosus. 4 = Rent in cartilage plate.

In conclusion, I am a profound believer in Schmorl's theory, but I doubt if any but a very few cases of adolescent kyphosis are the effect of congenital causes. The key to the problem lies in those mysterious fissures in the cartilage plate which I believe arise from flexion injuries. During the rough and tumble of play any child might sustain a flexion injury sufficient to produce these fissures, but I believe that the back of a child whose hamstring muscles are short is more susceptible to traumata of this nature, particularly if his general musculature is poor on account of previous debility or over-growth. I would go even further, and say that not only do short hamstring muscles predispose to flexion injuries, but they also give rise to rotation of the vertebrae and ultimately to scoliosis. If I have succeeded in convincing you that shortening of the hamstring muscles is an important factor, then we ought to agree that children with that condition should be watched with the utmost care and intelligence at school, and that toe-touching exercises in gymnastic classes should be condemned as a routine practice.

My thanks are due to Dr. C. J. Thomas for arranging for me to examine the school children, and also to the head master and head mistresses of the Laxon Street and Snowfield Schools for their courtesy and help. I should also like to thank Dr. B. Armstrong and Mr. Seddon for allowing me to see their cases and *x*-ray photographs.

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EFFECT OF PROLONGED ADMINISTRATION OF ACID EXTRACT OF ANTERIOR PITUITARY ON THE THYROID GLAND OF GUINEA-PIGS

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(With Special Plate)

Aron,[1] Loeb and Friedman,[2] and other investigators[3 4] have shown that the initial hyperplasia of the thyroid gland produced in animals by the administration of the thyrotropic hormone of the anterior pituitary regresses and involutes to the colloid state in spite of continued treatment. Similarly, the basal metabolism, after an initial rise to a maximum on the seventh to the fourteenth day, falls to normal or below normal (Siebert and Smith,[5] Anderson and Collip,[6] Friedgood[7]). The mechanism whereby this regression in thyroid activity is brought about is unknown. It has been suggested by Friedgood[7] and by Hertz and Kranes[8] that it may be the result of thyroid exhaustion. The present experiments were undertaken to verify previous observations and to determine whether any explanation for the thyroid involution could be found.

Experimental Procedure

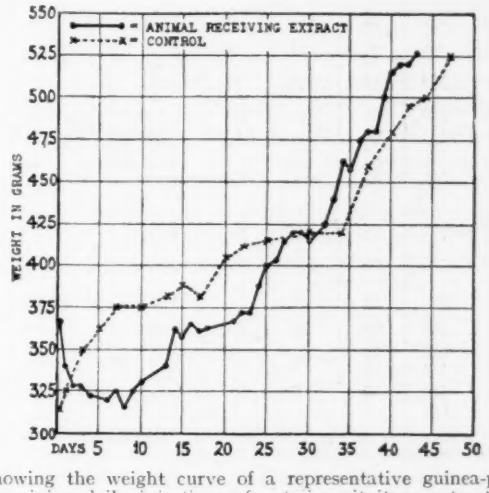
The extract of anterior pituitary was prepared after the method of Loeb and Bassett.[9] Under sterile conditions 5 grams of Armour's undegreased anterior pituitary powder were extracted with 100 c.cm. of 0.5 per cent. acetic acid for twenty-four hours at 0° C. The mixture was then centrifuged, the supernatant fluid poured off, neutralized to *p*H 7.8 (phenol red), and again centrifuged. The extract was prepared weekly, and, when stored at a temperature of 0° C., could be safely injected without causing sepsis. Intraperitoneal injections in daily doses of 1 c.cm. (equivalent to approximately 40 units of thyrotropic hormone) into guinea-pigs weighing about 300 grams produced in three days thyroids which were considerably enlarged, very vascular, and markedly hyperplastic (Fig. 2).

Preliminary experiments on rabbits showed that they are much less reactive to the thyrotropic hormone than guinea-pigs. Four prepubertal rabbits, each weighing about 1,500 grams and maintained on a non-goitrogenic diet of whole oats, alfalfa hay, and distilled water, received subcutaneously 4 c.cm. of the extract daily for six days. On the seventh day the thyroids were inspected surgically, and were found to be slightly enlarged and moderately vascular. The injections were continued for a further nine days and the thyroids again inspected. The glands had now diminished in size and their vascularity had considerably decreased.

Since a greater thyroid response may be obtained in guinea-pigs we chose these as experimental animals. Six males and eight females, each weighing between 300 and 400 grams, and receiving a non-goitrogenic diet containing fresh lettuce three times weekly, were given daily intraperitoneal injections of 1 c.cm., and later 2 c.cm., of the extract for varying periods up to ninety-five days. Three males and three females of approximately the same age and weight as the experimental animals were used as controls. The guinea-pigs which received thyrotropic hormone were weighed daily, the controls twice weekly.

Results

All the animals which were injected showed an initial loss of weight. It usually fell rapidly during the first week, and then returned to the original level by the end of the second week. Thereafter it rose steadily throughout the experiment. The control animals showed a progressive increase (see Chart). Two animals, however, lost weight progressively and died, one on the twelfth day and the other on the seventeenth. On the twelfth day the latter developed exophthalmos. At necropsy no cause for death could be found. In the one which died on the twelfth day the thyroid was extremely hyperplastic and the heart dilated. In the other, which was exophthalmic, the thyroid was slightly enlarged, but pale and translucent; microscopically there was slight hyperplasia, and colloid was beginning to accumulate in the vesicles. In both the suprarenals were enlarged and very hyperaemic.



Showing the weight curve of a representative guinea-pig receiving daily injections of anterior pituitary extract.

Exophthalmos also developed in two other animals, on the fourteenth and twenty-first days respectively, and persisted throughout the experiment (Figs. 5 and 6).

The remaining animals were killed at varying intervals. The thyroid glands of the controls ranged from 37 to 92 mg. in weight, and were histologically normal (Fig. 1). Of the twelve experimental animals the thyroid weights varied from 54 to 320 mg., and differed considerably in macroscopical and microscopical appearances. In four the thyroids were extremely hyperaemic and hyperplastic, and showed proliferative budding into the lumen of the vesicles (Fig. 3); in two the hyperplasia was less marked, and pale-staining colloid was accumulating in the vesicles. In the remaining six the glands were either pale and translucent or only slightly hyperaemic; histologically they had the characteristics of colloid glands, the vesicles being filled with well-staining colloid and the epithelium cubical or flattened (Fig. 4 and Table). In none of the thyroids was there evidence of exhaustion. The degree of thyroid involution appeared to bear no relation to the duration of treatment, neither was there any difference in the clinical appearance or behaviour of the animals which would make it possible to distinguish which animals still had hyperplastic glands. All were gaining in weight after the first week at a rate comparable with the controls.

The suprarenal glands showed marked changes. In the controls they were pale; in all the animals which received anterior pituitary extract they were enlarged and hyper-

aemic. The enlargement was greatest in those whose thyroid glands had involuted to the colloid state (see Table).

Effect of Prolonged Administration of Acid Extract of Anterior Pituitary on the Thyroid and Suprarenal Glands of Guinea-pigs

No. of Animal	Sex	Initial Weight (grams)	Duration of Experiment (days)	Final Weight (grams)	Condition of Thyroid		Weight of Suprarenals (mg.)
					Weight (mg.)	Histology	
A.—Animals receiving anterior pituitary extract							
30	F	340	94	597	115	Colloid—normal	571
31	F	370	93	407	224	Moderate — marked hyperplasia	456
32*	F	345	17 (died)	260	81	Early—moderate hyperplasia	422
33	F	395	12 (died)	224	121	Marked hyperplasia	299
34*	F	365	95	630	60	Colloid—normal	480
35	F	390	93	700	88	Colloid—normal	515
36*	M	372	87	515	320	Marked hyperplasia	413
37	M	377	41	370	54	Colloid—normal	681
38	M	373	87	490	230	Marked hyperplasia	345
39	M	397	87	556	170	Early—moderate hyperplasia	519
40	M	335	86	460	75	Colloid	725
41	M	370	87	515	280	Moderate — marked hyperplasia	346
69	F	276	73	335	80	Early—moderate hyperplasia	455
70	F	326	73	490	140	Colloid—normal	290
B.—Controls receiving no extract							
42	M	315	92	625	92	Normal	374
44	M	340	80	550	80	Normal	300
45	F	285	62	553	62	Normal	406
46	F	356	60	690	60	Normal	260
71	M	330	37	500	37	? Early hyperplasia	211
72	F	325	60	520	60	Normal	314

* 32: Exophthalmos on the 15th day. 34: Exophthalmos on the 14th day. 36: Exophthalmos on the 21st day.

Discussion

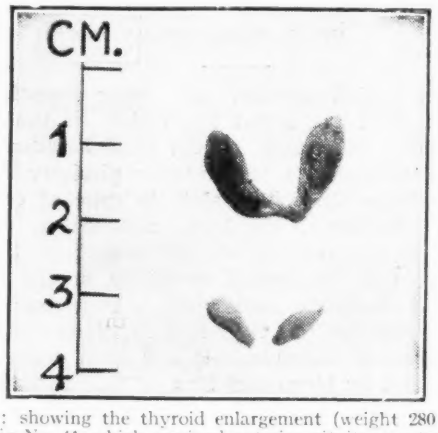
Our results show that although the majority of the thyroids of animals receiving thyrotropic hormone over a prolonged period involute to the colloid phase, a certain percentage do not, but continue to be hyperplastic. It is unlikely that these colloid glands failed to become hyperplastic in the first place, since 100 per cent. of 150 of our guinea-pigs which have received treatment for various purposes with anterior pituitary extracts have shown marked thyroid hyperplasia.

It has been suggested, notably by Friedgood[7] and by Hertz and Kranes,[8] that the regression of the hyperplasia is evidence of an exhaustion phenomenon in the thyroid as a result of the prolonged administration of the thyrotropic hormone. It must be stressed here that a colloid gland is not evidence of exhaustion, but is, as Marine[10] has repeatedly pointed out, the nearest approach to a normal gland that a thyroid which has been previously hyperplastic can attain. Involution to the colloid phase is evidence that the thyroid is no longer working under strain. On the other hand,

"exhaustion is believed to result from sustained hyperactivity without periods of physical rest. . . . Microscopically the colloid is practically absent. The epithelial cells are in the early stages high columnar, with infoldings and plications as in the active hyperplasia. Later the cells lose their uniform and regular shape and size. . . . There is often some piling up of the epithelial cells. The nuclei are in general large, often hyperchromatic, sometimes small and pyknotic, and very irregular in size and shape. . . . The stroma is relatively, perhaps absolutely, increased, and as the follicles become smaller, due to the loss of their secreting epithelium, the fibrous bands become wider, and give to the gland the appearance of a diffuse fibrosis or cirrhosis, in which lie the nests of distorted and degenerated cells of the former follicles" (Marine[11]).

The four glands in the present series which remained hyperplastic would be the most likely to show these changes, but in none of these were there any signs of exhaustion atrophy.

It can be safely concluded, therefore, that the gain in weight after the initial fall which was seen in our animals and the decrease in basal metabolism following the preliminary rise, which has been observed by other investigators to run more or less parallel with the thyroid involution, cannot be attributed to thyroid exhaustion. Some other explanation has to be sought.



Upper: showing the thyroid enlargement (weight 280 mg.) in guinea-pig No. 41, which received anterior pituitary extract daily for eighty-seven days. Lower: Thyroid gland of normal control.

Marine and Baumann[12 13] showed that a sufficient but sublethal injury to the suprarenal glands of rabbits produced an increase in basal metabolism, which began from the third to the sixth day, and lasted from a week to several months. This was accompanied by definite hyperplasia of the thyroid.[13] The diminution in the size of the suprarenal cortex which occurs in infants shortly after birth was shown to be associated with a rise in metabolism.[14] It is significant that in the present experiment all the animals receiving anterior pituitary extract showed marked hyperaemia and enlargement of the suprarenal glands, and that this enlargement was greatest in those animals whose thyroids had involuted. It seems probable that the suprarenals exert some control over thyroid function, since their enlargement is associated with a regression, whereas their partial removal causes an increase of thyroid activity.

The suprarenal glands appear to be dependent on the anterior lobe of the pituitary. Removal of the pituitary results in atrophy of the cortex.[15] Evans *et al*,[16] and later Collip, Anderson, and Thomson,[17] have shown that anterior pituitary extracts which contain the thyrotropic hormone also contain an adrenotropic principle. This adrenotropic factor was in all probability partly responsible for the suprarenal hypertrophy seen in our experiments. In addition, however, the suprarenals may also have been stimulated by an adrenotropic factor elaborated by the animal's own pituitary in response to the increased thyroid secretion produced by the administration of the thyrotropic hormone. Lastly, it is possible that an excess of thyroid secretion may directly cause suprarenal hypertrophy. This question is not yet settled; experiments are being conducted on these lines.

The demonstration by Collip and Anderson[18] of the presence of an antithyrotropic principle in the serum of animals treated for a prolonged period with anterior pituitary extract containing the thyrotropic hormone is interesting. We have recently confirmed this. A rabbit, aged 8 months, was given subcutaneously 8 c.cm. of anterior pituitary extract daily for six weeks. At the

end of this period the daily subcutaneous injection of 2 c.cm. of its serum prevented the occurrence of thyroid hyperplasia in guinea-pigs receiving at the same time daily intraperitoneal injections of 1 c.cm. of anterior pituitary extract. The formation of antithyrotropic principle is probably responsible for the regression of thyroid hyperplasia in animals which have received prolonged treatment with thyrotropic hormone. It is inconceivable that an antibody be formed to a hormone, as this would render it quite useless to the organism. The finding suggests that there exists normally a balance between thyrotropic and antithyrotropic principles. If large doses of the one be given, the other is elaborated in an endeavour to bring about hormonal equilibrium. Whether this antithyrotropic principle is produced by the suprarenal cortex in response to stimulation by adrenotropic hormone also contained in the extract is as yet unknown, but, if this be so, then the adenotropic hormone may be of value in the treatment of Graves's disease.

Summary

1. Thyroid hyperplasia, exophthalmos, and suprarenal enlargement have been produced in guinea-pigs by the prolonged administration of acid extract of anterior pituitary substance.

2. Although the majority of the thyroid glands had involuted to the colloid state during treatment, a certain percentage remained hyperplastic even after ninety-three days.

3. The suprarenal enlargement was greatest in those animals whose thyroids had involuted.

4. No evidence of thyroid exhaustion was observed.

5. The production by Collip and Anderson of an antithyrotropic factor in the serum of an animal treated for a prolonged period with thyrotropic hormone has been confirmed.

6. The mechanism responsible for the thyroid involution is discussed.

We wish to thank Professor F. R. Fraser for the interest he has taken in this work. We are grateful to Mr. S. B. Bradshaw, of Armour and Company, Ltd., for generous supplies of anterior lobe powder. One of us (A. W. S.) is indebted to the Medical Research Council for personal and expenses grants.

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The professorial chairs which the French Ministry of Education recently had to abolish on the grounds of economy include those of pathology and medico-chirurgical anatomy in Paris, therapeutics and external pathology at Lyons, medical physics at Nancy, operative medicine, physiology, and clinical obstetrics at Toulouse, physiology and clinical surgery at Bordeaux, pharmacy and operative medicine at Lille, and natural history and parasitology at Montpellier.

A NOTE ON THE X-RAY EXAMINATION OF EMPYEMA CAVITIES

BY

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(With Special Plate)

One of the main difficulties in the treatment of empyema is to determine the proper time at which to cease draining the cavity. At present the indications usually given for this turn upon two factors. The first is the period which has elapsed since drainage started. The time advised for drainage varies with different authors; a very widespread tradition puts it at three weeks, but it is often amazingly short, of the order of a week or so. The second indication is the character of the discharge, the tube being removed when it becomes scanty, watery in consistence, or sterile upon bacteriological examination.

Now it is to be noted that neither of these indications takes any account of the physical conditions, the size of the cavity, and the firmness of its walls. There is nothing in them to ensure against the closing up of a considerable hollow filled with varying proportions of gas and fluid. If this should occur, as it not infrequently does, the contents may fail to absorb, the pleura thickens and stiffens in its characteristic fashion, and the final obliteration of the cavity becomes extremely difficult. A persisting empyema is nearly always one in which drainage has been stopped too early and this thickening process allowed to occur.

I came to the conclusion some time ago[1] that the process of cure in all empyemata was the growing together of the walls of the abscess, with the complete permanent obliteration of the part of the pleural cavity concerned (an interesting contrast with the frequent dissolving of apparently firm adhesions of the peritoneum). In consequence, the only logical indication for ceasing drainage appeared to me to be completion of this process; otherwise it was impossible to foretell a result controlled by the unknown factors of the size of the cavity, the thickness of its walls, the nature of its contents, and the absorptive power (never very high) of the pleura. To work in this way means, of course, a renunciation of impressively quick cures, those in which drainage is successfully stopped in a week or so. I have had my share of these, but I have found their absence a small price to pay for freedom from secondary operations on those cases in which the accumulation of pus persisted.

Procedure Adopted

My first method of judging the process of healing was the crude but quite effective one of measuring the amount of fluid that the cavity would hold, running it in through the intercostal de Pezzer catheter which I employed for drainage. To the many who did not agree with me, however, this was not at all convincing, so that I sought for some more demonstrable evidence. One of the most obvious means was *x* rays, but their employment to define the cavity was not easy. Barium paste is difficult to get in and more difficult to get out; lipiodol is expensive, and, being a very viscous oil, breaks when in thin layers into globules that look like a charge of shot instead of giving a clean outline; and sodium iodide is liable to cause poisoning if used on an absorptive granulating surface.

In this difficulty I turned, as often before, to the head pharmacologist at the Hospital for Sick Children, Mr. Wycliffe Peck. After many experiments he succeeded in producing a cheap, sterile, stable, and very fluid

emulsion of lipiodol, which gave an admirable shadow under the *x* rays. By running this into the cavity through the irrigation tubes, it was possible to obtain a perfect outline of it and to follow the process of healing.

The case from which the skiagrams were taken (see Plate)—that of a large slowly healing empyema in a debilitated child of 6—illustrates the use of this method of investigation. If the time indication had been used for ceasing drainage and the tubes removed at three weeks or so after operation, I believe that a grave risk of recurrence of the abscess would have been run. The other indication, that of the nature of the discharge, would have given very little information, since throughout (probably owing to irrigation with Dakin's solution) it was thin, scanty, and almost sterile. But the *x*-ray examination showed steady improvement, and it was difficult in view of this to argue either for early stoppage of drainage or for later resection of one or more ribs.

The first skiagram, taken a fortnight after intercostal drainage, shows a typical large cavity in the costo-vertebral groove half filled by the emulsion. The second, six weeks later, shows the reduction of the size of the cavity by the progressive adherence of the two layers of pleura round its periphery. The spike-shaped cavity running upwards seen in the third, taken a fortnight later still, is the usual final stage of such an empyema.

I am at present trying to get the manufacturers of lipiodol to put on the market a similar emulsion to the one used. It appears to me that it should have a fairly wide application in surgery.

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LEFT SUBCLAVIAN ANEURYSM IN ASSOCIATION WITH CERVICAL RIB

BY

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AND

GEORGE DAVISON, M.B., B.S.

(With Special Plate)

From time to time cases of subclavian aneurysm in association with cervical rib have been reported, but the condition appears to us sufficiently rare to justify the recording of another case.

Case Report

Mrs. B., aged 75, a widow, was seen by us on November 9th, 1933, when she complained of loss of power and pain in the left arm, of three weeks' duration. Her symptoms began with a sudden loss of power in her left arm, which lasted about half an hour. Similar attacks occurred during the next few days, one attack lasting almost the whole day. Power returned to the limb, but the patient continued to have difficulty with finer movements of the hand—for example, fastening buttons. Pain, which radiated from the shoulder down the limb to the fingers, was present with the loss of power, and also passed off, leaving only a feeling of "pins and needles" in the left hand.

The patient stated that she had always been healthy. Thirty years ago, when looking in a mirror, she had noticed a pulsating swelling in the left side of her neck. This had not grown in size nor had it given her any trouble. One month previous to the onset of symptoms she had fallen on her left shoulder. As the patient was a good witness this history may be accepted.

On examination she was seen to be a well-nourished woman, who did not look her age. Above the middle of the left clavicle there was a swelling one inch in diameter, tense and elastic in consistency, and showing well-marked expansile pulsation; the surface was smooth and the edge well defined above and below, but not medially or laterally; it was freely movable in a line at right angles to the subclavian artery, but could not be moved in the line of the artery. The overlying skin was healthy and freely movable. Compression of the subclavian artery medial to the swelling diminished the size of the latter; compression distal to it increased the tension. On slight pressure over the swelling a systolic thrill could be felt; on auscultation the aortic second sound was clearly heard. On deep palpation a bar of tissue of bony hardness could be felt behind and just medial to the swelling; this bar extended downwards and laterally from the region of the seventh cervical vertebra.

The pulse was strong in both carotid and axillary and the right brachial and radial arteries, but could not be felt in the left brachial or radial. By auscultation the blood pressure in the right brachial artery was 138/80; in the left ? 120/100. In other respects the cardiovascular system appeared normal.

As regards the nervous system the only abnormality found was an impairment of the finer movements of the left hand—for example, in picking up a pin.

Her urine was normal and her Wassermann reaction negative.

Radiography showed a well-developed cervical rib on the left side and a small rudimentary cervical rib on the right. (See Special Plate.) The appearances on the left side are difficult to interpret, the outline of the first thoracic transverse process being somewhat obscure. The accessory rib appears to articulate behind with the seventh cervical transverse process and anteriorly with the first rib. It appears to us that the head of the first rib is displaced downwards and medially, and that there has also been a dislocation of the accessory rib from its articulation with the seventh cervical transverse process. There is a faint shadow present in the situation of the aneurysm.

Owing to the patient's age and the relatively unimportant disability present operation was deemed inadvisable. Yet, even in the absence of positive operation findings, we feel that the facts recorded justify a definite diagnosis of aneurysm of the third part of the left subclavian artery in association with cervical rib. The onset of the nervous symptoms may be attributed to a displacement of the first rib, and with it of the cervical rib, produced by the fall on the shoulder.

Literature

Keen[1] in 1907 stated that ten cases had been reported of cervical rib in which the symptoms suggested aneurysm of the subclavian artery, but that at operation no aneurysm was found in one case (Pancoast's) and only a flattening of the artery in a second (Murphy's). He records that in a case of cervical rib of his own he found at operation that the calibre of the subclavian artery lateral to the rib was twice that of the vessel on its medial side, but that no definite aneurysm was present. In another case (Ehrich's) aneurysm developed following operation. Keen points out that in several cases the abnormal dilatation and pulsation of the vessel disappeared following operation. He considers that true aneurysm, as distinct from temporary dilatation of the vessel, is very rare, and, in addition, warns against abnormal pulsation produced by an abnormally high position of the artery being diagnosed as aneurysm. He cites one case, however (Adam's), in which at necropsy a definite cylindrical aneurysm was found extending from the outer border of the scalenus anterior to the commencement of the brachial artery.

Halsted[2] has collected records of 716 cases of cervical rib, in twenty-seven or more of which aneurysm or dilatation of the subclavian artery distal to the rib was noted. These include six in which the surgeon "believed the vessel abnormally large" and two in which an aneurysm

appeared promptly after removal of the rib. In an investigation on the cause of the dilatation he performed experiments in which an artery was partially occluded by a metal band. He concludes that circumscribed dilatation of an artery may arise distal to a constriction, the dilatation being at a maximum when the lumen of the vessel is reduced to a third or a quarter ; and that it is constriction of the subclavian artery which produces the dilatation sometimes noted distal to a cervical rib. The portion of the artery distal to the constriction forms a relatively dead pocket, and, in his opinion, the dilatation is probably due to the whirlpool-like play of blood in this. He believes that probably vasomotor paralysis, trauma, and sudden variations in the blood pressure in the artery play no part. Halsted does not distinguish simple dilatation of the artery and "true aneurysm."

Since Halsted's article at least two further cases have been reported.

Moore[3] records a case in a man of 55 in which there was a saccular aneurysm the size of a cherry springing from the anterior surface of the artery just distal to the rib. There was neither bruit nor thrill over the aneurysm, it was increasing in size, and there was no difference in the radial pulses. The Wassermann reaction was strongly positive. Good recovery followed ligation of the artery on either side of the aneurysm.

Billington[4] describes a patient of 42 who came under observation with a pulsating swelling in the left side of the neck ; there was a difference in timing of the radial pulses. One month later the left radial pulse had disappeared and pain was severe. After a further five months the pulsation in the swelling had gone. There were no nervous signs. *X*-ray showed a fully developed cervical rib on the right side and an incomplete rib on the left. The Wassermann reaction was negative. The patient made an uneventful recovery following excision of the aneurysm. The aneurysm consisted of a fusiform swelling 2½ in. in length and with a maximum diameter of 3/4 in. It was almost completely occluded by thrombus. No primary disease of the intima was found.

Discussion

It appears to us that Moore's case was of a different nature from the others, and produced by different factors ; the aneurysm was saccular in character and not associated with a difference in the radial pulses, and there was evidence of a syphilitic infection.

The case we have described seems to fall into line with the others recorded and with Halsted's experimental results—that is, there is a circumscribed dilatation of the subclavian artery immediately distal to a constriction caused by a cervical rib. We shall not attempt to define the conditions under which the dilatation of an artery shall be termed aneurysmal, but maintain that, clinically at least, the swelling in our case is an aneurysm of the third part of the subclavian artery. It is worthy of note that this aneurysm had evidently been present for thirty years without enlargement and without symptoms.

Summary

A case has been described of left subclavian aneurysm in association with cervical rib. The aneurysm had been present for at least thirty years, but neither it nor the rib had produced any symptoms until a fall on the shoulder caused a displacement of the rib.

We are indebted to Dr. Whately Davidson of Newcastle-on-Tyne for the radiograms of the case.

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A CASE OF BLINDNESS AFTER N.A.B.*

BY

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The organic preparations of arsenic used medicinally are divisible into two groups—the pentavalent and the trivalent. The former derives from arylarsinic acid and comprises atoxyl, soamin, arsacetin, hectine, orsudan, indarsol, stovarsol, treparsol, and tryparsamide. The trivalent group obtains from arsenobenzene, and contains salvarsan and its allies. The synonyms of salvarsan are "606," arsenobillon, arsenobenzol (France), and arsphenamine (U.S.A.). Similarly, neosalvarsan is known as "914," N.A.B. (novarsenobillon), novarsenobenzol (France), and neoarsphenamine (U.S.A.).

Cases of blindness after administration of the pentavalent group were early recognized, and were collected by Lawford in a paper opening a discussion in 1916 (*Trans. Ophth. Soc.*, vol. xxxvi, p. 12). He mentioned cases of blindness following atoxyl reported by Koch, Kopke, Morax, and McAdams. In 1910 Ernest Clarke (ibid., vol. xxx, p. 240) reported blindness after soamin and orsudan ; and it is known to occur after stovarsol and treparsol. Tryparsamide is a drug which has been in use recently for neural syphilis and trypanosomiasis (Lees, ibid., vol. lii, p. 208), but there is an admitted danger of optic atrophy, and its administration calls for care, especially during the first few injections. (See also Woods and Moore, *Journ. Amer. Med. Assoc.*, vol. lxxxv, p. 329).

Reports in the Literature

With regard to the trivalent arsenical preparations, the report of the Salvarsan Committee of the Medical Research Council in 1922 (Special Report No. 66) includes a section on the toxic effects of these drugs. It refers to an enormous amount of material from military hospitals and civil treatment centres. Altogether 140,636 cases are included, and no blindness was reported, although there were forty-nine fatalities. German figures are also mentioned. In 1914, 74,018 German cases were reported, including one in which blindness resulted. Further German figures in 1917 referred to 265,158 cases without any blindness. Thus, in a grand total of 479,812 cases, only one case of blindness was reported after the use of the salvarsan group.

In 1916 Lawford stated (*loc. cit.*, p. 25):

"After '606,' optic nerve lesions and lesions of the third, seventh, and eighth nerves have often occurred, which develop from a few days to six weeks after the injection. These usually, but not invariably, disappear if further treatment by '606' or mercury is adopted. These lesions are undoubtedly syphilitic, but are precipitated by salvarsan."

In 1927 J. G. Hopkins wrote (*Amer. Arch. of Ophthal.*, vol. lvi, p. 543):

"The production of optic atrophy by arsphenamine in a previously uninjured eye has never been proved, but with a pre-existing neuritis of primary optic atrophy, it may appear to cause damage."

In 1928 S. O. Chambers also reviewed the literature, and finds that reports of damage to the eye from salvarsan are very rare (ibid., vol. lvii, p. 412). In 1930 Dr. Gunn said that the trivalent preparations did not cause amblyopia (*Trans. Ophth. Soc.*, vol. l, p. 392). In 1931 E. A. Seale (*Journ. Med. Assoc. of South Africa*, p. 528) reported the case of a man, aged 54, who

* Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Bournemouth, 1934.

lost vision after a first injection of 0.75 gram of N.A.B. Three more similar doses were given without further effect. The vision was reduced to 1/60 in each eye, with white sharp-edged disks and narrowed vessels. The field to white was full ; that to colour was lost. Two months later it had improved so that the right vision was 3/60, the left 6/60.

Case Record

The case I have to report is as follows:

History and State.—A married woman, aged 46, was brought to hospital on account of a positive Wassermann reaction. She was admitted with a history of some mental abnormality (? nervous debility), two miscarriages, and several attacks of aphonia. She had undergone appendicectomy and removal of gallstones seven years previously. On admission she was found to have an aortic systolic murmur, but there was no complaint of vision, and her mental and general condition appeared good. She had had no eye trouble previously.

Treatment and Progress.—She was given a course of N.A.B. by the resident medical officer in six doses, commencing with 0.3 gram and concluding with 0.9 gram twenty-eight days later. (The dates and doses are recorded as follows, but there is some doubt as to their exactitude: first day, 0.3 gram ; fourth day, 0.45 gram ; eleventh day, 0.5 gram ; sixteenth day, 0.6 gram ; eighteenth day, 0.75 gram ; twenty-ninth day, 0.9 gram.) She was also given mist. hydrarg. biniodidi by mouth. She developed a skin rash on the day after the last injection. Fifteen days later she became rapidly blind in both eyes, the left lost all perception of light, the right vision was reduced to hand movements. I saw her two days later and noted that both disks were white, with slightly hazy outlines, and that the arteries were narrow, with white lines along them. The vision varied but little afterwards, and two years later she still had no perception of light in the left, and bare perception of light in the right eye. The disks were white with hazy edges ; some of the vessels were small, some of fair size.

Outcome.—Her general condition remained fair at the time of the onset of blindness ; she was in a somewhat toxic state, but there was no encephalitis and no meningitis. The rash noted previously had subsided. The cerebro-spinal fluid was not examined. Trinitrin was administered on the day after the onset of the blindness, and a few days later sodium thiosulphate was given intravenously, but without benefit. The Wassermann reaction and the Kahn tests were still positive two months later.

Commentary

The rarity of this complication renders the above account open to criticism, but the facts are as they have been recorded. The woman was admitted with no ocular complaint ; she became blind. There is no doubt but that she was treated with N.A.B., but the exact dates and doses cannot be vouched for. The dimness of vision affected both eyes simultaneously and was rapid in its onset. There was no gross oedema of the disks, and the whole appearance seems to resemble that seen in quinine poisoning in the optic pallor and narrowing of the vessels of the retina.

In the report of the special committee of the Medical Research Council the opinion is expressed that some ill effects of salvarsan are due to inorganic arsenic (a capillary poison), which is slowly broken down after injection, and the late action is thus explained. The reactions of salvarsan are classified as follows: (1) immediate—for example, diarrhoea, vomiting, fever, and headache ; (2) encephalitis haemorrhagica—two to five days later ; (3) liver affections—(*a*) jaundice, early and transient, or (*b*) jaundice, occurring several weeks after the end of the course of treatment, and running a long period, (*c*) acute yellow atrophy ; (4) exfoliative dermatitis, which may be late, and may be fatal from septicaemia ; (5) rare lesions—for example, acute nephritis, enteritis, polyneuritis, and aplastic anaemia ; and finally, (6) the Herxheimer reactions, from relapse of syphilis, owing to a sudden liberation of spirochaetal toxins. (These include nerve lesions, especially the cranial nerves, and are more likely to affect structures which have already been attacked by the disease. Such reactions may start after the first injection or after the end of a series.)

In the present instance the pathological site and mechanism are open to discussion. As far as was known there was no gumma or other gross lesion present, the solution of whose walls might set free spirochaetal toxins to attack the optic nerve. It would seem that it is more likely to have been a case where the arsenic itself has affected the optic nerve, the retina, or its blood vessels.

Clinical Memoranda

THE USE OF FASCIA LATA SUTURES

The particular method of obtaining a fascia lata strip is decided by two factors—namely, the difficulty or ease of the method and the after-effects on the patient. Leading authorities insist on the need of closing the gap left in the fascia lata after removing the strip, and this, of course, necessitates a skin incision corresponding in length to the length of the fascial strip obtained. Gallie and Le Mesurier[1] say that failure to close this gap results in "mild bulging muscle hernia, and some of these people speak of a feeling of moderate weakness in the thigh." Orrin[2] says that omission to close the gap "bequeaths to the patient a heritage or soreness, an aching, and a constant tiredness in the area and in the limb, and so impairs, in greater or less degree, the usefulness of the limb itself." In face of such authority it was with some trepidation that I employed for a small series of cases of hernia a fascial strip cut subcutaneously through small incisions in the thigh. This leaves, of course, the gap in the fascia lata unsutured, but the saving in time and trouble over suturing the gap in fascia and skin is considerable.

Technique

The instrument used was that described by Lane and Austin,[3] and known as the "Meath Hospital fascia cutter." It consists of a handle bearing a long rod, at the end of which is a strip with a knife-edge bent into a U shape. This cutting strip is introduced through a small skin incision into two small cuts in the fascia lata, marking out the width of fascial strip desired. Pushing the handle along then results in this strip being separated from the rest of the fascia on each side. It is claimed that the strip of fascia may be cut through the one small incision, the instrument being designed so that a turn of the handle cuts across the fascial strip at any desired length.

In actual practice two modifications will be found to save time. First, the overlying skin is bound down to the fascia lata by tough bands of fibrous tissue, and these should first be broken down and the skin and fascia separated over the area from which the strip is to be taken. This is best done by using the spatula-like handle of the fasciotome invented by Rowlands. The fascia separates easily from the underlying muscle as it is cut. Secondly, it will be found easier to cut the strip across at the upper end under direct vision through a second small incision.

Results

I have traced twenty-five of my cases and examined them at intervals of from three and a half months to two years after operation. This number is small, but

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[2] Orrin, H. C.: *Fascial Grafting in Principle and Practice*, 1928, p. 33.
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I felt some reluctance to use a method not approved of by leading authorities. The number is large enough, however, to allow some conclusions about the method to be drawn. All of the patients had a muscle hernia through the gap left unsutured. No one complained of weakness, and some were following the strenuous occupation of dock labouring. Twenty did not complain of any pain; the other five said they had occasional slight pain. So that, using this method, we may expect a muscle hernia in every case, no muscular weakness in any, and some slight pain in a few. The incidence of pain is probably no greater than would occur if a long skin incision had been used.

Whether a muscle hernia can be prevented is doubtful, even if the gap is sutured. Gallie and Le Mesurier[4] have themselves shown that aponeurotic structures, no matter how they are sutured together, will separate if the line of suture is subject to strain, and they conclude that "edge-to-edge suture of aponeurosis or fascia should only be done where the tissues can be brought together without tension, and where the physiological strain will be slight." The strain on a suture line in the fascia lata when a portion has been removed must be frequent and considerable.

Conclusions

1. Fascia lata strips are most easily obtained by the subcutaneous method.
2. No serious after-effects result from this method.

My thanks are due to Dr. H. H. MacWilliam, medical officer of Walton Hospital, Liverpool, where these cases occurred, for permission to publish the results.

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DIABETIC GANGRENE IN A YOUNG WOMAN

It has been suggested to me by Dr. R. D. Lawrence that the following notes on diabetic gangrene in a girl 20 years of age may be interesting to some of your readers.

The patient, a confectioner, was first admitted to the Royal Lancaster Infirmary on May 8th, 1932. It seemed that her illness had commenced two weeks previously, with a feeling of malaise, dizziness, and vomiting. Her medical attendant, on finding glycosuria, immediately sent her into hospital. On admission she was very thirsty, dyspnoeic, and the breath smelt strongly of acetone. Urine showed sugar +++; blood sugar was 0.4 per cent. Under insulin the blood sugar came down, and she was discharged on a 1,700 calorie diet, with instructions to attend periodically for blood sugar estimations.

On December 4th, 1933, she was again admitted to the Infirmary, where she arrived in a comatose condition: urine—sugar +++, acetone +. Twenty units of insulin three times a day made the urine sugar-free and brought the blood sugar to 0.2 per cent. On 40 units a day she became sugar-free for a short time, but the dose had to be increased to 45, and finally to 50 units. She was discharged on December 16th with instructions as before, which unfortunately she failed to observe. She was exceedingly difficult to stabilize.

The patient was readmitted to the Infirmary on July 23rd, 1934, with the following history. She had been quite well until one week before, when, after bathing in the sea, she complained of chilliness and a feeling of numbness in both feet. Next day she had a severe headache, and went to bed. Two days later she developed a cold, and complained of severe malaise and a pain in the right chest. The numbness of the feet had now passed off and the malaise had subsided, but the left foot became distinctly blue, with complete loss of sensation.

On examination she was markedly dyspnoeic, and the breath smelt strongly of acetone. Chest signs were those of the early stages of pneumonia. The left foot was cold and completely anaesthetic up to two inches above the malleoli. There was gangrene of all the toes for about one inch on to the dorsum. Pulsation was absent in the popliteal, posterior tibial, and dorsalis pedis arteries: knee-jerks were present. The right foot was also cold and white, with no pulsation to be detected in the dorsalis pedis artery. The following day the gangrene in the left foot had extended considerably, and had reached the middle of the dorsum. The toes of the right foot had now become blue. A definite consolidation was present in both lungs; the patient gradually became weaker, and died on July 28th.

I wish to acknowledge my indebtedness to Sister Selkirk, who in the earlier treatment of the case was in charge of the ward, and to Dr. Kenneth Tattersall, senior house-surgeon, for his notes on the later stages.

F. W. Bury, M.D.,
Honorary Physician, Royal Lancaster Infirmary.

[4] Gallie, W. E., and Le Mesurier, A. B.: *Brit. Journ. of Surg.*, xii, 239.

THE SWALLOWING OF OPEN SAFETY-PINS

I think it may be instructive to record two cases of very young children who swallowed open safety-pins. Both were admitted to the Victoria Central Hospital, Wallasey.

The more recent case was that of a child of 2 years. The pin stuck behind the cricoid, and the child was admitted crying and in pain, with its hand held over its mouth. It resolutely refused to swallow anything, no doubt because of the pain that any effort of deglutition caused. The child had been very sick after swallowing the pin, but without returning the foreign body.

The oesophagoscope was passed without any anaesthetic, local or general. The intention was to try and draw the pointed shaft into the oesophagoscope, and, having got it thus out of harm's way, to withdraw both pin and tube together. This could not be done. The keeper of the safety-pin was immediately found at the cricoid level, but the pointed shaft could not be seen even after prolonged search. As traction on the keeper would have drawn the point into the tissues, and the pointed shaft could not be found, I had no choice but to free the pin and try and work it into the stomach. I did not find this easy, but eventually I lost sight of the pin, and concluded it was probably in the stomach.

A little haemorrhage, however, made it difficult thoroughly to search the lower end of the oesophagus, and I was not very surprised, therefore, to find, on taking a further radiograph, that the pin was arrested at the cardiac opening of the oesophagus. The child could now, however, swallow fluids easily, and the pin was soon carried into the stomach, where it remained about two days. It subsequently travelled slowly and uneventfully downwards, and was voided on the sixth day.

As soon as the pin had been dislodged from the cricoid region, and the child was able to swallow, cotton-wool was given in the food and drink. The wool was teased into tiny pieces about the size and thickness of confetti, and freely mixed with the meals. Unless it is in very small pieces wool is easily detected in the food, and young children will extrude it from the mouth. Ordinary food was given and no aperient allowed. When found in the motion the pin was completely enveloped in wool. No particle of metal was discernible, and it was necessary to tear away the woolly covering to be sure the pin was within. The pin was 1⅛ inches long, and the span at the open end was 5/6 of an inch.

A very similar case was in the same ward a short time ago. In this instance the child was 3 years old, and the pin was not caught in the oesophagus. It was rather a larger pin, about 1½ inches long, with a wide gap at the open end. Cotton-wool was given in the same way, and the pin was voided completely enclosed in a woollen envelope.

The chief conclusions to be drawn from these cases are: (1) if an open safety-pin will pass through the oesophagus there is a good prospect of it making a safe journey through the whole alimentary canal; (2) the mixing of wool in the food will, certainly in many cases, cause the pin to become completely embedded in a matted cocoon-like covering.

Liverpool. Courtenay Yorke, M.D., B.S., F.R.C.S.

Reviews

PRACTICAL ASPECTS OF ALLERGY

In *Allergy in General Practice*[1] Dr. S. M. Feinberg has produced an account of the subject which is refreshing. Many books have been published in recent years on the subject of allergy, and it is difficult as yet to assess their relative merits. But it can be stated with confidence that this book is essentially practical, and the author has no particular theory to exploit. It is written with the object of enabling the medical practitioner to diagnose and treat a case of allergy with understanding, and this object is largely attained ; it is not, and does not claim to be, a book for the research worker.

There are sections on the history of our conception of allergy and anaphylaxis, on the pathology, symptoms, and complications of asthma. The specific causes of asthma are adequately discussed, and the diagnosis and treatment of asthma are dealt with in detail ; hay fever and its treatment also receive due attention. The account of the American pollens naturally will be of less value to European readers, but the principles underlying the conventional treatment of hay fever are clearly stated. A chapter is devoted to other allergic and possible allergic diseases, and is of interest in that the author does not overstate his case, and yet discusses such debatable subjects as the justification for including migraine and epilepsy in this group. The book concludes with an interesting series of case histories taken from the author's own experience, which should be a help to others in the management of similar cases.

The impartiality of Dr. Feinberg's judgement may be illustrated by the following quotation, in which he is discussing the nature of the asthmatic constitution:

> "We may summarize by saying that of all the concepts explaining the constitution of the allergic individual there is no evidence for many, some evidence but no proof for some of them, and no absolute proof for any one of them. And yet there must be an allergic constitution! "

This attitude of the author adds greatly to the attraction of the book, as the limitations of our knowledge both of the causation and of the treatment of asthma and allied diseases is made manifest. This is a sound book, well printed, and should prove of value to anyone interested in the subject, especially from the practical point of view.

PROBLEMS OF DUST

The interesting and instructive monograph on *Dust*[2] by Dr. Cyril Blacktin commends itself to meteorologists and students of the physical sciences and of problems of public health. The widespread distribution of dust on the earth's surface, and its diffusion through the atmosphere, give to the subject an importance which cannot be ignored. Dust, as the end-product of material degradation, assumes various forms consequent upon the attritional influence of physical forces upon the earth's surface, of chemical actions, and of industrial operations. It is composed of visible and invisible particles of matter, in such a fine state of subdivision that the particles are light enough to be easily raised, and carried as a cloud, by the wind. A diameter of 50 microns is the dividing line between visible and invisible units in the atmosphere. Once formed the tendency is for dust particles to decrease in size. It is the invisible particles which are the more important. Clear air may contain as many as 30,000 to 60,000 particles per cubic centimetre, which the ordinary tests of visibility might not affirm. Dust accumulates in certain territorial areas more than in others, so that the material is raised as sand-storms in the deserts or carried as snow-dust clouds over mountains, while in its minor quantities it is raised in the streets of towns by vehicular traffic, and in factories by the feet of the workers, the wear and tear of machinery, and the escape of products of manufacture in fine division. Instead of using the phrase "a dust-laden atmosphere" the author suggests the word " staubosphere " for the aerial surrounding medium which is coextensive and coexistent with the earth's atmosphere.

The question has on several occasions been asked as to how far, in the first instance, life was conveyed to the earth by clouds of meteoric dust, how far dust is of cosmic origin and the outcome of meteoric disintegration ; but these questions need not detain us. It is enough for us to know that it plays an important part in mundane phenomena by precipitating rainfall, and by obstructing the penetration earthwards of certain of the sun's rays. Particles of dust contain solid nuclei, which are water-soluble or insoluble. The nuclei of city carbon dusts are mostly insoluble. Rain surrounds dust particles with a watery envelope, and, in falling, it depletes the atmosphere of solid particles. The liquid evaporating on the settlement, the solid particles remain. These are subsequently lifted by the wind and carried hither and thither, deposited in fresh areas, or wafted into the streams and carried seawards. Dust by facilitating rainfall clears and cleans the atmosphere, but in the neighbourhood of smoke-laden cities and industrial works, where the nuclei of the dust particles are carbonaceous or metallic, and the surroundings are soiled, rainfall will temporarily increase the dirtiness. Rain may contain slightly dissolved gases, and while it is pure when falling in remote country areas it cannot, in towns, for long remain thus. Dust is a medium for the conveyance of bacteria by adhesion. Polar air is free from micro-organisms ; so, too, may be the hot air of the desert, although rich in dust. Ocean air is remarkably free from bacteria, partly owing to the large number of salt particles of which it is the bearer.

In the ordinary walks of life we cannot escape from dust, visible and invisible. In addition to dust raised in the streets as the result of traffic, the air we breathe is polluted with smoke from chimneys and the debris given off from the rubber tyres of motor cars and lorries. Dr. J. T. Dunn and Mr. H. C. L. Bloxam have drawn attention to the possible injury to health by exhaust particles escaping from motors. Analysing dust collected in the streets of Newcastle-upon-Tyne and grasses growing on roadsides leading to and from that city and much frequented by motor vehicles, these analytical chemists found lead and copper to the extent of 6.5 parts per million. The wearing down by friction of tramway and railway lines, also the chemical corrosion of exposed iron structures, not only impregnate the atmosphere with metallic dust, but are a serious economic loss to the country. A distinction is made between smoke and dust. Smoke particles are primarily large: they increase in size and agglomerate: later, ceasing to increase further in size, they disintegrate and become dust. There is, therefore, a continuous transition from smoke to dust, but never vice versa. Without dust, light itself would be invisible. It is the presence of dust which confers upon the sky its colour.

Dealing with dust in industry and technology the author divides dust into two types—*nuisance* and *dangerous*. The former is that found on the floors of factories and smithies, and in the neighbourhood of disintegrating colliery spill heaps: dangerous dusts, on the other hand,

[1] *Allergy in General Practice*. By Samuel M. Feinberg, M.D., F.A.C.P. London: H. Kimpton. 1934. (Pp. 339 ; 23 figures, 1 coloured plate. 21s. net.)

[2] *Dust*. By S. Cyril Blacktin, M.Sc., Ph.D., A.I.C. London: Chapman and Hall. 1934. (Pp. 296 ; illustrated. 18s. net.)

are those which are capable of inflicting considerable damage physically, for if disseminated through the aerial medium of a coal mine, for example, they create a highly combustible dust-laden atmosphere, capable of becoming ignited by an electrical spark and causing an explosion. Of all dusts that evolved from coal is the most dangerous, owing to its combustibility, the extent of its production, and the readiness with which it is fired and exploded in the presence of methane and hydrogen-air mixtures.

The earliest treatise dealing with metallic dust is, according to Blacktin, *De re Metallica*, by G. Agricola, published in 1556, several decades before Ramazzini was born. Since then the study of the subject has grown apace. It is not that dust alone is always the harmful agent to persons employed in industrial occupations, so much as that the particles are carriers of microbes. For over a century and a half the medical profession has been familiar with the harmfulness of the metallic dusts of industries and of mining. Mineral rocks rich in silica are the main sources of the lung diseases which affect rock-drillers, hence the term "silicosis." Silica and silicate dusts, when inhaled, stimulate the phagocytic activity of the large cells in the alveoli of the lungs. Industrial dusts may be swallowed or inhaled, but the principal and more dangerous portal of entry is the respiratory tract. When inhaled the particles may cause irritation of the tracheal and bronchial mucous membrane, and, by recurrent bronchial catarrh, a denudation of their protective mucous membrane, so that the finest particles of dust readily reach the alveoli of the lungs, and while many of these particles are phagocytosed and eliminated by expectoration, others of the dust-laden cells are retained in the alveoli, pass into the lymphatics, and are carried to and deposited in the glands at the roots of the lungs, while simultaneously the interstitial tissue of the pulmonary parenchyma is becoming overgrown and fibrotic. Dust diseases of the lungs have been so fully dealt with in the pages of this *Journal* that there is no call to consider now the symptomatology and pathology of the pneumoconioses. *Dust*, by Blacktin, is a wealth of carefully collected data; it bears the imprint of wide reading and of a discriminating personality.

TREATMENT OF SPASTIC PARAPLEGIA

Mrs. Marguerite K. Fischel records in *The Spastic Child*[3] her experiences in the training of her paraplegic son, and shows what in a suitable case may be achieved by unremitting maternal devotion and paediatric skill. This record would have pleased William John Little, to whose work Mrs. Fischel refers, for he insisted strongly on the importance, even in apparently hopeless cases, of frequent manipulations and training directed to the overcoming of spasm and acquisition of muscular control. No exact account is given in this book of the extent or degree of spasm in the case in question, but we must infer from the results attained that the higher cerebral centres were not seriously affected, but that the disease affected only the spinal cord.

In this little book Mrs. Fischel describes the exercises and manipulations which, during sixteen years, were with unflagging perseverance carried out by her and her son with astonishing results. No surgical operation was performed and no orthopaedic appliance was found necessary, except for the treatment of an intercurrent compound fracture of the femur, the result of a motor car accident. Mrs. Fischel informs us that the boy's father, who is a surgeon, nevertheless took no part in the treatment here described.

[3] *The Spastic Child. A Record of Successfully Achieved Muscle Control in Little's Disease.* By Marguerite K. Fischel. London: H. Kimpton. 1934. (Pp. 97; illustrated. 6s. net.)

MILTON'S BLINDNESS

To the perennial subject of Milton's blindness Miss Eleanor Brown has added a contribution of an intensely personal character,[4] for her interpretation of Milton's life and writings is based on her own experience of blindness since childhood. On many points generally accepted by the sighted critic she differs considerably, drawing on the emotional reactions of the blind to emphasize her arguments. Most critics would agree with the estimate Rose Macaulay gave in her recent study of Milton that "he died a vanquished and embittered idealist, in a world with which he had never come to terms, nor could." It is also generally accepted that *Samson Agonistes* is almost a crypto-autobiography, in which the vanquished and embittered idealist wreaks imaginary vengeance on his enemies. There are also those who see autobiographical references in every mention of blindness in Milton's writings. With all this Miss Brown breaks radically. She argues persuasively that Milton was at peace with the world; that though he passed through a stage of agony during the development of his blindness, he had reached a serene resignation by the time he penned his sonnets on the subject; that he was complete master of his soul when he wrote *Paradise Lost*; and that so far from being autobiographical, *Samson Agonistes* with its plaints on blindness is the least autobiographical of Milton's writings, for the emotions portrayed are wholly at variance with the dispassionate resignation apparent elsewhere. She definitely makes a strong point in saying that his pride would never have allowed Milton to lament his blindness in the stark nakedness of Samson's plaints, and that anyhow Milton would not have given his enemies the satisfaction of such plaints. Miss Brown's view of Milton certainly conjures up a happier man, but one cannot help feeling that Milton was a more dynamic character and less at ease amongst men than the nice old gentleman that emerges from her studies.

The opening chapters of this able and very interesting study are devoted to a discussion on the nature of the poet's blindness. The author rightly dismisses the absurd view of Saurat that congenital syphilis was the cause, and Mutschmann's still more preposterous theory of albinism. Between the two possible causes—glaucoma, as held by W. H. Wilmer, and myopia with detachment, as argued by Arnold Sorsby—Miss Brown, like the wise critic she is, refuses to adjudicate.

WILDBOLZ'S TEXTBOOK OF UROLOGY

Anyone who has read Professor Hans Wildbolz's textbook of urology will rejoice at the appearance of a second edition.[5] The original work was, in the reviewer's opinion, the best of the smaller textbooks on the subject, and the new edition is even better than the old. About one hundred pages of new matter and fifty illustrations have been added, yet all the good points of the original have been retained. Among the additions are a chapter on Bright's disease, which, the author mentions in his preface, has been made at the request of many readers, and an account of gonorrhoea in the male. The inclusion of the former in a work that is otherwise entirely surgical may be open to question, but there can be no doubt that the latter subject should be incorporated in a work on diseases of the urinary organs in both sexes, and of the genital apparatus of the male. These two additions account for about half the new matter, the remainder

[4] *Milton's Blindness.* By Eleanor Gertrude Brown. New York: Columbia University Press; London: H. Milford, Oxford University Press. 1934. (Pp. 167. 12s. 6d. net.)

[5] *Lehrbuch der Urologie.* Von Professor Hans Wildbolz. Zweite Auflage. Berlin: J. Springer. 1934. (Pp. 645; 218 figures. R.M. 64; geb., R.M. 68.)

being interpolations necessary to bring the book up to date.

The great charm of Professor Wildbolz's book, which applies to all his writing, is that he has the happy knack of making his meaning perfectly clear. There is never the slightest ambiguity in his statements. Moreover, his style is simple and his sentences short. The book can therefore be read easily by anyone with a limited knowledge of German, and can be recommended to those who wish to gain facility in reading medical literature in that language.

The book is divided into two parts. The first deals with the physical examination of the patient, the examination of the urine, cystoscopy, catheterization of the ureters, estimation of the renal function, and radiography of the urinary tract. It concludes with a chapter on general symptomatology—pain, changes in micturition, pathological conditions of the urine, urinary fever, etc. The second part, by far the longer of the two, is purely clinical, and is divided into sections according to the organ affected. The pathology and symptomatology of the different diseases are fully described. The operative methods are given in less detail, but their modifications to meet special conditions are carefully considered. The teaching is extremely practical, and is the result of great experience.

On the whole, the book is crammed with sound, useful information. There is no repetition or unnecessary verbiage. Although the matter in it is condensed, it is set forth in an interesting and readable form. There is only one fault to be found with it. The book, like many other German works, is too expensive. A paper-covered volume of less than 650 pages should not cost 64 marks. At the present rate of exchange this is approximately £5.

Notes on Books

A second edition has now been issued of *The Practice of Absorption Spectrophotometry with Hilger Instruments*,[6] by Mr. F. Twyman and Dr. C. B. Allsopp. The subtitle of this book gives a sufficient indication of its scope—"An introduction to the theory of the subject, and guide to the technique of absorption measurement in the visible, ultra-violet, and infra-red regions of the spectrum."

Of the five articles in the September number of the *Annals of Medical History*[7] two deal with European and three with American medical history. In an extremely complete account of Sir Dominic Corrigan and the water-hammer pulse, Professor George Dock, formerly of Washington University, St. Louis, now of Pasadena, who has written similar interesting footnotes to medical history, traces the origin of the familiar descriptive name "water-hammer pulse." It did not appear in Corrigan's original article in 1832; after a long search, in which for a time the earliest use appeared to be in an article by Galabin in 1876, it was found that another Guy's physician, Hilaro Barlow, had in 1852 written about "the splashing or water-hammer pulse," and that Sir Thomas Watson may have anticipated him. At one time, like Sir Dyce Duckworth at St. Bartholomew's Hospital, Professor Dock always showed his students the water-hammer toy, but in 1915 he could no longer obtain one. Dr. W. T. Dempster of Ann Arbor completes his well-illustrated account of European anatomy before Vesalius, which he began in the July number of the *Annals*; he points out that with the exception of Leonardo da Vinci the serious-minded anatomists lacked the insight and appreciation of method which in succeeding centuries raised anatomy from a colourless discipline to a vigorous science. Dr. W. B. Howell of Montreal tells the story of the Hôtel-Dieu of Quebec, from its start as a small log cabin in 1639, with six nuns from the ancient Hôtel-Dieu at Dieppe to the present great teaching hospital, and relates how in the interval it has played its part in many troubles, including great epidemics of cholera and other infections a hundred years ago. Dr. Jonathan Forman of Columbus, Ohio, tells in detail the history of the first cholera epidemic in that town in 1833; and Dr. A. E. Fossier continues and concludes his history of medical education in New Orleans.

The August issue of *Arquivos de Medicina Legal e Identificação*[8] is devoted to the proceedings of the Congress of Identification organized by the chiefs of the police of the Federal District of Brazil and of São Paulo, held at Rio de Janeiro from June 16th to 23rd, under the presidency of Professor L. R. Almandos of the University of La Plata. The issue is illustrated by portraits of the leading personalities of the congress and numerous photographs of the São Paulo Institute of Identification.

[6] *The Practice of Absorption Spectrophotometry with Hilger Instruments.* By F. Twyman, F.Inst.P., F.R.S., and C. B. Allsopp, M.A., Ph.D. Second edition. London: Adam Hilger Ltd. 1934. (Pp. 140; 40 figures. 12s. 6d. net.)

[7] *Annals of Medical History*, New Series, vol. vi, No. 5, September, 1934. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber, Inc.; London: Baillière, Tindall and Cox. (Pp. 381–474; illustrated. Volume of six numbers, £2 15s.; single number, 12s. 6d.)

[8] *Arquivos de Medicina Legal e Identificação.* Edited by Leonido Ribeiro. Rio de Janeiro: Imprensa Nacional. 1934. (Pp. 242; illustrated.)

Preparations and Appliances

Wellcome Insulin (Cryst.)

We have received a sample of Wellcome Brand Insulin (cryst.), which the makers (Messrs. Burroughs Wellcome and Co.) state is the first commercial insulin made from pure crystalline insulin. This is an interesting advance in the chemistry of endocrine products, and it is satisfactory to note that the price for the highly purified product is only 2s. 3d. per 100 units.

Rhinitol

Rhinitol is a preparation for nasal administration. It contains a mixture of volatile oils, together with ephedrine; they are dissolved in a vehicle which is stated to be an advance on ordinary liquid paraffin. The preparation has an antiseptic and vaso-constrictor action, and is recommended for use in a variety of forms of nasal infection. It is manufactured by E. T. Pearson and Co., Ltd., London Road, Mitcham.

"Allenburys" Products

Allen and Hanburys Ltd. are putting two new preparations on the market. One is "Allenburys" tannic acid jelly, a water-soluble antiseptic application containing 2.5 per cent. of tannic acid ready for immediate use in the treatment of burns; free from oil or grease—price 1s. 9d. a tube. The other preparation is "ferrodic" iron granules—chocolate-flavoured granules containing 1.75 per cent. of ferrous iron in glucose, suitable for children and adults—prices 2s. 3d. and 4s.

Pocket Refractometer

Bellingham and Stanley Ltd., 71, Hornsey Rise, N.19, announce the production of a pocket refractometer, primarily designed for the direct reading of the percentage of sugar in solutions. This instrument covers a range of from 0 to 25 per cent., and has a sufficiently open scale to allow of estimations down to 0.1 per cent. It is thought that it may have important uses in medical work for blood and urine estimations. Following in design that of the larger instruments, it consists of two glass prisms mounted in a hinged box. A drop of the liquid to be tested is placed between, and readings are made by an orthodox optical system upon a scale divided from 0 to 25 per cent. soluble solids. The refractometer is sent out correctly adjusted, with a check reading for water of 0 at 20° C. Three types of instrument are offered, and certain other ranges are available to suit special purposes. The overall length is 16 cm.; weight, 112 grams. Prices vary from £5 10s. to £6 10s.

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LA GRANULIE FROIDE

Nomenclature in medicine is not seldom a source of much misunderstanding. The French, keen observers, have often been responsible for labels descriptive of morbid anatomical appearance alone. Grancher's *splénopneumonie*, now better known as epituberculosis, offers a good example. When, however, Empis, in 1865, applied the term "*granulie*" to acute miliary tuberculosis, he clearly wanted to distinguish the condition from pulmonary tuberculosis. Although the tuberculous nature of the disease was soon recognized, the name *granulie* has persisted in France to the present day. In more recent years evidence from various sources has accumulated which indicates that the appearance of *granulie* did not necessarily imply rapid death, and in 1924 the "rumblings" were crystallized in a paper by Burnand and Sayé,[1] who attempted to differentiate a new clinical entity—*granulie froide*. Impressed by the fibrotic disseminated tubercles seen post mortem in the lungs of a boy of 12, who had ailed for four years, and shown fine granules in the chest skiagram when he came under observation fourteen months before his death, they collected over twenty cases, in both children and adults. In these, similar symmetrical fine shadows were revealed radiologically; the patients presented only mild constitutional symptoms and very slight or no fever—hence "*froide*"; and the clinical course lasted one, two, and even up to ten years. Finally, they suggested that such patients could probably completely recover. The term "*granulie froide*" was taken up with enthusiasm, but a recent discussion in Paris[2] has shown that considerable confusion still exists on the subject.

No one will deny that a clinical syndrome which in the living patient is primarily based on a chest skiagram must be accurately defined in that respect. For while the presence of tubercles in other organs is undoubted, they are not there so easily detected except in the later stages. Thus Duken,[3] Hellgren,[4] and Miller[5] have published *x*-ray photographs of cases showing calcified tubercles in the spleen, liver, and mesenteric glands. Ameuille, Burnand, Debré and Lelong, and Besançon emphasized the care needed to exclude other conditions which may give an appearance not unlike *granulie*: pneumoconiosis, carcinomatosis, dissemination following haemoptysis, diffuse fibrosis, congestion, and even the sequel of lipiodol injection. Little difficulty should be experienced in the differential diagnosis, especially if one remembers to look for fine nodules of similar size, symmetrically disposed in the whole of both lungs.

Inadequate attention was, however, drawn to two other aspects of the syndrome. Bacteriological control by guinea-pig inoculation of the gastric lavage centrifugalized deposit is a method widely employed on the Continent in children, and now practised by Clausen in Copenhagen and Sayé in Barcelona, even in adults. And the development of a lesion in one or more organs at some stage of the illness is not infrequent. Léon Bernard, disregarding anatomo-pathological evidence, concluded that it was unnecessary to distinguish a special clinical form "based entirely on an *x*-ray picture"—a picture "representing merely a certain type of lesion met with in many clinical forms and associated with other lesions." He thought that it was merely "a transitory state, often initial, of tuberculosis, but was not a special form." Debré and Lelong admitted the existence of such a special chronic form in children, but they considered it to be merely a transitory stage of acute miliary tuberculosis, and described eight cases in which it led to death within three to nine months. Their findings may, however, be influenced by the fact that they deal with acute illness in a children's hospital, as contrasted with the chronic and contact material of a dispensary like Sayé's. This argument also applies to Lesné *et al.*, who stated that a large number of cases of *granulie froide* in young children are really subacute slow forms and always fatal, although they admitted the existence of a much more chronic form in older children.

Can the position be clarified? At the basis of the subject lies the conception of the common haematogenous origin of chronic pulmonary tuberculosis—a conception long held in France, extensively studied of late years in Germany (for example, by W. Pagel[6]), and recently introduced into American literature by Miller.[5] The rarity of a bacillaemia in these conditions—concluded by Wilson in his critical survey[7]—need cause no surprise, as Miller points out, when it is remembered that even in acute miliary tuberculosis it can only be demonstrated in 40 per cent. of cases. Clinically evidence is accumulating in favour of a prolonged second stage of Ranke, for the tuberculous origin of conditions like pleurisy, erythema nodosum, phlyctenules, and anal fistula is steadily being recognized, and tuberculous foci in bones, kidneys, and skin, occurring successively or simultaneously, are not uncommon. It would indeed be remarkable if the lungs, filters of the lesser circulation, did not frequently become involved. The chronicity of these conditions and the varied clinical forms they assume—of which *granulie froide* is but one—must presumably be attributed to humoral factors about which our knowledge is still incomplete. The question is, however, not one of mere academic interest. In the presence of a "miliary" skiagram the practitioner should search for evidence of haematogenous spread elsewhere and seek the aid of modern methods of bacteriological

[1] *Ann. de Méd.*, 1924, xv, 365.
[2] *Bull. et Mém. Soc. de Méd. de Paris*, June 15th, 1934, p. 886.
[3] *Ergebn. d. inn. Med. u. Kinderh.*, 1931, xxxix, 344.
[4] *Acta Paediatrica*, 1932, xiii, 180.
[5] *Amer. Rev. of Tuberculosis*, 1934, xxix, 489.
[6] *Ergebn. d. ges. Tuberk.*, 1933, v, 231.
[7] Medical Research Council, Special Report No. 182, London, 1933.

control. However mild or chronic, these cases are of serious prognosis owing to the probability of fresh crops of tubercles and to the likelihood of one of these episodes becoming acute. Indeed, Pagel[6] has found that acute miliary tuberculosis almost always arises from pulmonary tuberculosis which has had a haematogenous origin. Hence with regard to treatment, which is thus also prophylactic in nature, attention must be drawn to the satisfactory results obtained by Sayé with sanocrysin.[5] It would appear, therefore, that the subject merits further study to clarify much that is yet obscure, but a plea must be made for the rejection of an expression which has already caused too much confusion. Even "chronic miliary tuberculosis" represents only part of the truth, so that in view of the relative rarity of pure examples of the condition perhaps some justification may be found for a term which, though cumbersome, accurately describes the syndrome—"chronic disseminated haematogenous tuberculosis with pulmonary localization."

THE BIOLOGY OF SOCIAL LIFE

The basis of the scientific attitude is the recognition that all life is one and that progress in the knowledge of one part may be made by reasoned analogy from another. This was the faculty that made Francis Bacon unique in his time and enabled him to lay the foundations of modern inductive reasoning. In an attempt to find a solution for the urgent sociological problems of the day, the British Institute of Philosophy has arranged a course of lectures on the importance of a philosophy of life for mental health.* Professor W. Langdon Brown, in his opening lecture, on November 1st, on "The Biology of Social Life," diagnosed and interpreted some of the outstanding modern political problems in terms of biology. The results of his inquiry are most interesting. It seems obvious that, man being a social animal, he must be subject to the biological laws which govern life in general and gregarious animals in particular, yet few writers have examined him in the light of this truth.

Professor Langdon Brown's theme is that the most striking quality about the living cell, from which all life starts, is its insistent urge to assert itself as strongly as environment will admit. The whole story of many-celled organisms is one of mutual adjustment between the different tissues. At first a number of single cells herded together for mutual support and each did the same work. In the next stage different groups of cells did different work, the central nervous system co-ordinating and controlling their efforts. The development of the invertebrate was checked by the fact that the nervous system could not develop without choking the digestive tract, and two ways of escape were found. One was the gregarious habit in which each individual is absorbed into the community, like the bee or the ant; the other was the development of a vertebral column. The mesozoic vertebrates went in for mere size, and their central nervous system soon proved itself too rudimentary to control their vast bulk. As before, a substitute was found in gregariousness—co-operation between smaller individuals. The course of successful evolution has all along been to increase, not the size of the individual, but the size of the unit. For the mammal in general and for man in particular this has been a much longer, more painful, and more dangerous path than for the insect, because his brain is capable of so many different reactions. The development of communal life restricts the freedom of the individual, and man has not found this easy. As the unit has been enlarged from the family to the tribe, the tribe to the small nation, and the small nation to the empire, the individuals within the unit have been clamorous for self-expression and the small units within the empire for self-determination. There are two tendencies in eternal conflict: the general demand for enlargement of the unit, and the species-making impulse which attempts to segregate a particular type. The former instinct leads towards international co-operation; the latter towards the fanatic nationalism of many European nations to-day.

For the moment the segregating, species-making impulse has the upper hand. One of the most disturbing features of the present political situation, as Professor Langdon Brown sees it, is that the nations which have forsaken the higher ideal for the lower seem perfectly content. They appear even to have gained a new hope, a new faith, and a new stability. The new level is more suited to their evolutionary development and they are more comfortable in it. Liberty is regarded as a curse, tyranny as the way of salvation. Nevertheless he holds, and we agree, that the position is fundamentally unsound. Although human beings in a community are the equivalent of cells in an organism, they have achieved self-consciousness and individuality. If the repressing force upon their originating and creating powers is strong enough, these powers will die and degeneration will follow. The solution, he thinks, can only be found by a method which gives adequate freedom to the individual life within a large co-ordinated unit. If our civilization is not to go back to the melting-pot, its members must remorselessly strip off the labels from outworn symbols, resolutely adopt reality principles, and realize the latent possibilities in human life. In the willing co-operation of free individuals for the common weal lies the only cure for the world's ills. Professor Langdon Brown, to his great credit, is optimist enough to believe that man may find this way to salvation. Of one thing he is sure. If this civilization falls it will be succeeded by a long period of chaos. In the course of centuries another dominant blend will inevitably arise and found a new civilization, but this thought holds little consolation either for us or for our children.

[5] *Crisoterapia de la Tuberculosis*, Salvat Editores, Barcelona, 1933.

* Further lectures will be given at 5 p.m. on November 8th, 15th, and 22nd, by Dr. William Brown, Dr. Emanuel Miller, and Dr. Crichton-Miller, at University Hall, 14, Gordon Square, W.C. Applications for tickets should be made to the Director of Studies.

GENERAL MEDICAL COUNCIL ELECTIONS

Practitioners in England and Wales should have received last week the voting papers for the purpose of an election of a direct representative on the expiration of the present term of office of Mr. Bishop Harman, who is a candidate for re-election. Voting papers for the purpose of an election of a second direct representative on the expiration of the present term of office of Sir Henry Brackenbury, who has also been nominated for re-election, will be issued on November 13th. The last day for the return of voting papers in the first election was October 30th ; for the second election it is November 20th. In order to enable practitioners readily to distinguish between the two sets of voting papers, white papers were issued for use in the first election, and the papers to be issued for use in the second will be coloured.

Under Section 9 of the Medical Act, 1886, when a vacancy occurs in the office of President of the General Medical Council, the Council " shall elect one of their number to be president for a term not exceeding five years, and not extending beyond the expiration of the term for which he has been made a member of the said Council." Sir Norman Walker, who succeeded Sir Donald Macalister in the presidential chair on November 24th, 1931, comes to the end of his period of office as direct representative for Scotland on January 1st, 1935. Sir Norman has now been duly nominated again for the constituency which he has represented without a break since January 1st, 1907, and his re-election may, we hope, be regarded as a foregone conclusion.

Our *Supplement* this week contains at page 231 the election address of Dr. Leonard Kidd, who for more than twenty-eight years has served as direct representative of the practitioners of Ireland upon the General Medical Council.

THE MOUSE AND INFLUENZA VIRUS

Two years ago the medical profession was still deploring the fact that a suitable animal was not available for the experimental study of influenza. Then last year came the announcement by Smith, Andrewes, and Laidlaw[1] that the ferret was susceptible to the virus of this disease and the convincing demonstration by them that, as many had suspected, the prime cause of influenza was a filterable virus. The use of the ferret also enabled these workers to show the close relationship, if not identity, of the virus of human influenza and the virus isolated by Shope from swine influenza. A relatively inexpensive animal was now available for influenza work ; this was a great step forward. But there was one drawback to the use of the ferret. Its susceptibility to this virus was such that infection passed readily from animal to animal, so much so that stringent quarantine measures were necessary to make the results of experimental transmission of any value, and not every laboratory could do this. Andrewes, Laidlaw, and Smith[2] have just published a further paper on their influenza work which is probably of even greater significance than their first. They find that, contrary to what they first thought, the mouse can be infected with the virus of influenza. If the virus is administered by nasal instillation to mice under light ether anaesthesia a proportion of the animals develop a bronchopneumonia which in the majority of instances has a fatal termination. Serial passage has been achieved by them in mice with ferret strains of both swine and human influenza virus, and filtration and cultural experiments have shown clearly that the disease in mice was due to a filter-passer. Further, these viruses have been shown to produce typical influenza in the ferret after having undergone several mouse passages, and neutralization tests have given final proof that the disease produced in mice was due to influenza virus. It is interesting to note that the serum used to neutralize the human strain of influenza virus is one that has been prepared in the horse ; further details of this serum are to be published shortly, and will be eagerly awaited. Another important point emerges from this new work. It would appear that influenza in the mouse does not spread from animal to animal as it does in the ferret, thus doing away with all the elaborate precautions which have to be taken when working with the latter animal. This is of the greatest significance ; for, with such an easily handled and inexpensive animal as the mouse available for work on influenza, and with elaborate precautions against spontaneous spread no longer necessary, this line of research comes within the scope of most laboratories. Transmission to the mouse direct from man has yet to be achieved, but there seem to be no sound reasons for doubting the possibility of this. Should this prove to be so one can hopefully predict a rapid advance in our knowledge of influenza in the near future.

[1] Smith, W., Andrewes, C. H., and Laidlaw, P. P.: *Lancet*, 1933, ii, 66.
[2] Andrewes, C. H., Laidlaw, P. P., and Smith, W.: Ibid., 1934, ii, 859.

NEWCASTLE SCHOOL OF MEDICINE

We published a short account of the history of the Newcastle-upon-Tyne School of Medicine thirty-seven years ago,[1] and we now welcome the addition[2] made to the story by Professor G. Grey Turner and Dr. W. D. Arnison. Both are well qualified to continue the tale, for both are distinguished alumni of the school, and the book appears appropriately on the occasion of the centenary of the school's foundation. The history is wonderful, and is a remarkable example of North Country grit and perseverance in the face of every obstacle. The school is the outcome of a desire on the part of a small band of local general practitioners to provide better teaching in a rapidly developing locality which was remote both from London and from Edinburgh. It began in the humblest manner, and at first the teachers themselves paid for the privilege of lecturing. The school had its troubles in the early days, but it was always strong in the existence of the general hospital or infirmary, where there was a wealth of clinical material and a fairly constant supply of men able and willing to teach. The energy of the teachers and the background of the infirmary soon gained

[1] *British Medical Journal*, 1897, i, 213.
[2] *The Newcastle-upon-Tyne School of Medicine, 1834–1934.* By G. Grey Turner, assisted by W. D. Arnison. Newcastle-on-Tyne: Andrew Reid and Co., Ltd. 1934. (10s. net.)

recognition for the school by the great licensing bodies of the time, the Society of Apothecaries, the Royal College of Surgeons, and later the University of London. The school itself became affiliated to the University of Durham, although the teaching was carried out at Newcastle-upon-Tyne, and in due course, as the Faculty of Medicine, became an integral part of the university. Professor Grey Turner and Dr. Arnison continue the story, and show in admirable language and with a wealth of excellent illustrations the position of the school at the end of one hundred years—well equipped in every department and with a first-rate reputation. They lighten the dry facts and statistics with sketches of a student life which has now passed away, though it is within their own personal experience. They deal—perhaps too kindly—with the foibles of the "characters," Hare Philipson, Murphy, McBean, and many others who seem to have been indigenous. Of them we should like to have had some of the stories told or invented by their colleagues and the students. Their kind is non-existent now, and can never be reproduced. On the whole a most satisfactory book and well worth reading.

ENDOMETRIAL HYPERPLASIA

Severe and irregular uterine haemorrhage is a symptom the gynaecologist often encounters, and of recent years attention has been focused on the condition known as endometrial hyperplasia. Burch, Phelps, and Wolfe[1] have written a general review of the literature devoted to this condition and included observations from their own experience, and from this paper the following points are taken. The French knew of a polypoid condition of the endometrium as early as 1846. Seven years later Brennecke noted the absence of corpora lutea in the ovaries of patients suffering from this type of haemorrhage, and suggested that an ovarian disorder was the cause of the endometrial changes. In 1900 Cullen introduced the term "endometrial hyperplasia," but it was not until after the classical paper of Hirschmann and Adler, describing the normal cyclical changes in the endometrium, appeared in 1908 that a clear conception of abnormal histological appearances in the uterine mucosa could be obtained. The view of Schroeder that the uterine changes before ovulation were caused by a hormone elaborated in the follicle and those after ovulation by one arising in the corpus luteum is widely accepted. In endometrial hyperplasia the corpus luteum is absent, so that the normal changes in the endometrium which immediately precede menstruation fail to occur. The thickness of the endometrium may be excessive or not greatly above the normal, and indeed in many cases the diagnosis is not made without difficulty. "In still other specimens the bleeding originates in an endometrium corresponding in time relations and histology to the type seen in the interval phase . . . yet there is an absence of corpora lutea as evidenced by the absence of progestational changes." It is therefore clear that the histologist is often dependent on an exact gynaecological history for his diagnosis. There is usually an absolute increase in the number of cells and glands, which sometimes present bizarre forms. Small cysts are frequently observed in the endometrium, as are patches of oedema and small areas of necrosis. The cause of the bleeding is not clear, and the areas of necrosis may be the cause or the result of the haemorrhage. The persistence of the haemorrhage is due to the fact that two or three months may elapse before desquamation of the endometrium occurs. Indeed, desquamation to the basal layer may never take place. It is natural that attempts should be made to implicate the pituitary gland. The ovaries themselves are frequently the seat of an old inflammation and contain cysts. In many cases only one functioning ovary is present. Wilfred Shaw believes "that the polypoid endometrium reacts upon the ovaries to produce an inhibition of follicle ripening or of ovulation or of full formation of the corpus luteum: in turn the ovaries respond by producing continuously a toxin, identical in type with that causing the disintegration of the premenstrual endometrium in normal menstruation. In consequence disintegration of the superficial layers of the polypoid endometrium occurs." The abundance of observations and the variety of views make it manifest that as yet little is known concerning the cause of endometrial hyperplasia. It may occur at any time in life, but is decidedly more common at or near the menopause. There is no evidence that it may develop into cancer, and its only danger is that consequent on haemorrhage. The condition is frequently associated with fibromyomata of the uterus. In young women repeated curettage may be followed by normal menstruation and pregnancy, and indeed the condition may clear up of its own accord or after various forms of therapy. Some authors have obtained good results from the exhibition of hormones, while others have had success with thyroid medication. At the menopause either radium treatment or hysterectomy is indicated, though the authors propose to try an old remedy of packing the uterus with gauze soaked in pure formalin. Endometrial hyperplasia is therefore to be regarded as one of the causes of severe and irregular bleeding which probably arises as the result of hormonal disharmony. Histologically it is characterized by hyperplasia of the endometrium, which does not undergo the normal progestational changes initiated by the hormone elaborated in the corpus luteum. The difficulty in the diagnosis of endometrial hyperplasia is illustrated by the fact that Taylor, in a review of the microscopical material of the Roosevelt Hospital, concluded that out of 216 cases diagnosed as such only eighty-eight deserved to remain in that category. Such a conclusion surely means that from the therapeutic point of view endometrial hyperplasia is at present of greater academic than practical interest.

[1] *Arch. of Path.*, 1934, xvii, 799.

THE FIGHT AGAINST DISEASE

The fourth quarterly issue this year of *The Fight Against Disease*, issued by the Research Defence Society, opens with an article by Sir Leonard Rogers on the reduction in the sufferings and deaths of children from diphtheria due to the use of anti-diphtheritic serum treatment during the last forty years. After illustrating by statistical tables the fall in the death rates since the introduction of antitoxin treatment, and stressing the importance of realizing its comparative failure when

started after the fourth day, Sir Leonard puts forward an approximate and conservative estimate of the life-saving value of diphtheria serum, based on the data published by Dr. Graham Forbes. He shows that probably 80,000 children have been saved in each year from death due to slow suffocation, or approximately 1,680,000 individuals in only twenty-one years out of nearly forty during which the serum has been available. He then deals with the arguments often advanced by the opponents of antitoxin treatment, especially with the long-exploded but still exploited total mortality myth. Another article discusses medical research from a layman's point of view, and there is a note on anti-vivisection advertisements in sub-post offices. A letter is published from a correspondent who was formerly an enthusiastic anti-vivisectionist, revoking his previous views, but holding that experiments might be more frequently performed on human beings than is at present the case.

HALL INSTITUTE OF RESEARCH, MELBOURNE

The fifteenth annual report of the Walter and Eliza Hall Institute of Research, Melbourne, opens with an appeal for additional support amounting to £1,000 annually, failing which measures of retrenchment implying reduced usefulness will become inevitable. It is hoped that an investigation of virus diseases, particularly of those affecting the nervous system, will shortly be started in close co-operation with the Commonwealth Serum Laboratories, supported by the Rockefeller Foundation. The investigation of Australian snake venoms continues to occupy a prominent place in the report, information now being available about the mortality of the various species and the decrease in their yield of venom in captivity. A study of the bacterial flora of their mouths showed that, whereas direct smears from the mouths of newly caught snakes contained few or no organisms, after a month or two in captivity the smears are crowded with organisms, including coliform bacilli, *B. proteus*, other bacilli which do not ferment lactose, staphylococci, and some anaerobes. Freshly collected venom contains but few organisms, and drying kills off many of the lactose non-fermenters. These findings are important from the point of view of immunizing horses, it being necessary to filter or otherwise sterilize venoms before using them for injections, or to devise better methods of collecting the venom. Neutralization experiments *in vitro* on the protective power of pooled normal adult serum against the virus of poliomyelitis indicated that it had only about one-third of the power of convalescent serum. Experiments on the sterilization of catgut drew attention to the importance of not relying upon an alcoholic solution of mercury biniodide for this purpose, and led to the recommendation of the method of impregnation with iodine. A review of the accumulated evidence regarding lead poisoning and nephritis in Queensland emphasized the primary factor of chronic poisoning in childhood. The weathering of lead paint on the outside of houses and veranda railings exposes young children to a definite lead hazard, while some poisoning may result from spraying fruit and vegetables with lead arsenate. There is no indication that hereditary influences, scarlet fever, congenital syphilis, or other infections play any important part in causing the increased mortality from chronic nephritis in Queensland, except in so far as they conduce to diminished resistance. The lines of future work are indicated, including the correlating of pathological changes in the kidneys of persons dying before middle age from chronic nephritis with evidence of the storage of lead in the body. Further legislation against the use of lead paint is also necessary, particularly in respect of house painting, the supply of articles for the use of children, and fruit spraying.

CHRISTINE MURRELL FELLOWSHIP

The October issue of the *Medical Women's Federation News Letter* makes further reference to the project for founding a post-graduate fellowship in memory of the late Dr. Christine Murrell. The members present at the annual general meeting in Sheffield felt that the best way in which they could honour their former president and treasurer was by the provision of means whereby the living might be served. Dr. Murrell's interest centred itself in general practice, and it was her conviction that in this sphere, with all its difficulties, lay a great opportunity for women of the right kind. She also took a keen interest in the question of medical education, and felt strongly the need for all doctors to keep themselves abreast of modern methods and teaching. It was agreed that a fitting memorial to one who had so much at heart the welfare of women in general practice would be the creation of a fund to be used to enable young women general practitioners to benefit by a course of post-graduate study. Many of our readers, men as well as women, would wish to take some part in thus commemorating Christine Murrell, whose work for the profession as a whole was recognized by repeated election to the Council of the British Medical Association and (a few months before her death) by election to the General Medical Council as direct representative for England and Wales. Donations may be sent to the treasurer of the Medical Women's Federation, 9, Clifford Street, Bond Street, W.1.

Sir Humphry Rolleston will give the FitzPatrick Lectures before the Royal College of Physicians of London on Tuesday and Thursday, November 6th and 8th, at 5 p.m. The title is "History of the Endocrine Organs."

On Wednesday next, November 7th, at 5 p.m., Professor A. Castiglioni will read a paper before the Section of the History of Medicine of the Royal Society of Medicine. His subject is "Morgagni and the School of Anatomy of Padua," which should prove as attractive to anatomists and surgeons as to medical historians, and the president of the Section, Sir StClair Thomson, asks us to say that visitors will be welcome.

The 1934 Nobel prize for medicine and physiology has been awarded jointly to Professor George F. Minot and Dr. William T. Murphy of Boston, Mass., and Professor George H. Whipple of Rochester, N.Y., for their researches into liver therapy in connexion with pernicious anaemia.

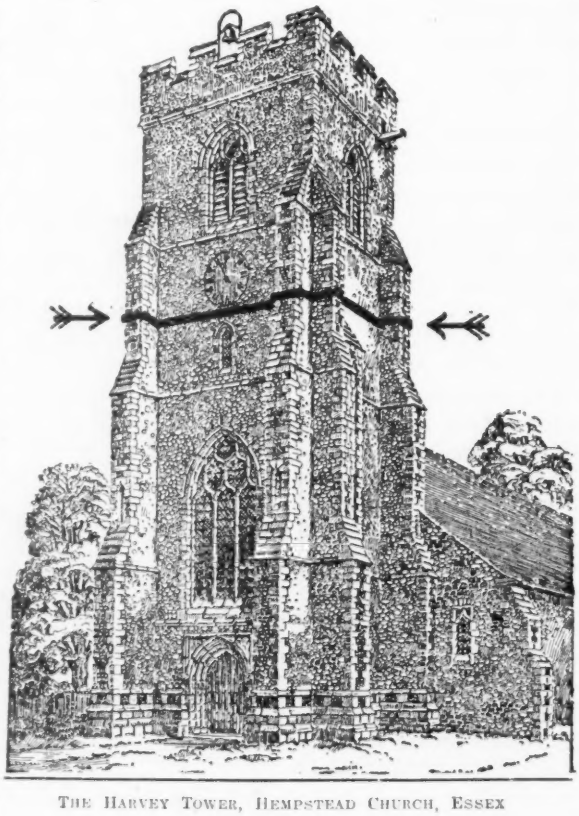
HARVEY MEMORIAL AT HEMPSTEAD

THE UNFINISHED TOWER

A further appeal is being launched this week for funds to complete the rebuilding of the tower of Hempstead Church, Essex, as a memorial to William Harvey, whose remains are deposited there. This parish church, seven miles from Saffron Walden and some fifty miles from London, is a fourteenth century building of much interest; it was closely linked with the Harveys, and contains memorials to other members of the family who achieved distinction in varied walks of life.

On January 28th, 1882, two hundred and twenty-five years after William Harvey's death, the massive tower, with its clock and fine peal of bells collapsed towards the south-west, and the stones lay in dismal heaps in the churchyard until eighteen months ago. The smallness and the comparative isolation of the parish of Hempstead were such that it was not possible to collect enough funds to make good the damage; all that could be done, in addition to some urgent temporary repairs, was to gather and stack the stones and flints, in the hope of some day rebuilding the tower. The Harvey vault, with lapse of time, also fell into disrepair, and in 1883 the Royal College of Physicians of London removed the leaden shell containing the body of the immortal William Harvey and placed it reverently in a marble sarcophagus in the Harvey Chapel of the church, where it now rests.

During the last few years a committee, comprising representatives of the medical profession, of Caius College, Cambridge, and Merton College, Oxford, of St. Bartholomew's Hospital, and of the parishioners of Hempstead, has striven to raise funds to re-erect the tower as a visible memorial to Harvey, and it has obtained altogether about £3,000. This sum was not enough to restore the tower to its full height, but the committee decided to make a start, in the hope that further money would be forthcoming to rebuild the ringing-room and the belfry. On July 7th, 1933, Lord Dawson of Penn, President of the Royal College of Physicians, laid the foundation stone of the new tower at a ceremony in which representative members of the profession took part.[1]



THE HARVEY TOWER, HEMPSTEAD CHURCH, ESSEX

We reproduce on this page a drawing by the architect, Sir Charles Nicholson, whose design for restoring the tower is agreed on all hands to harmonize perfectly with the ancient church. The arrows and black line show the point at which the work of reconstruction has stopped for the time being. The part below the line has already been completed, largely with old stone and flints from the fallen tower. A further appeal for the sum of £2,000 is now made to finish the work. The members of the Harveian Society of London, to mark their centenary in 1931, instituted a special fund for reconditioning and rehanging the old bells when the tower is built to the top, and this fund is held in readiness to round off the pious task of associating the name of "the great exponent of the experimental method in biology and the founder of scientific medicine" with his resting place in a little English village.

Donations are invited from members of the medical profession and others. They should be made payable to the Harvey Memorial Fund, and sent to Dr. G. de Bec Turtle, Royal College of Physicians, Pall Mall East, London, S.W.1.

The Chairman of the Harvey Memorial Committee is Sir John Rose Bradford, the vice-chairman is Lord Stanmore, the treasurers are Dr. Arnold Stott and Mr. A. W. Ruggles-Brise, and the honorary secretary is Dr. de Bec Turtle. Other members of the committee include the Bishops of Chelmsford, Colchester, and Barking, Sir Thomas Barlow, Sir Humphry Rolleston, Sir D'Arcy Power, Sir Archibald Garrod, Sir Farquhar Buzzard, Sir Charles Sherrington, Sir William Hale-White, Dr. Arnold Chaplin, Dr. Herbert Spencer, the Master of Caius, the Warden of Merton, the Master of the Apothecaries' Society, the Vicar and churchwardens of Hempstead, and the Editors of the *Lancet* and the *British Medical Journal*.

It is the earnest wish of the committee that the response to this appeal should be not only adequate in amount, but also thoroughly representative of the profession of medicine as a whole. The members of our profession are singularly qualified to estimate, at their real worth, the greatness and far-reaching character of Harvey's discovery, and to apprehend the truth and value of Harvey's exhortation to the Fellows of the College of Physicians, "to search out and study the secrets of Nature by way of experiment." It is to be hoped that the appeal will reach laymen as well, for the name and fame of William Harvey are national possessions. His discovery of the circulation of the blood "remains to this day the greatest discovery of physiology, and its whole honour belongs to Harvey."

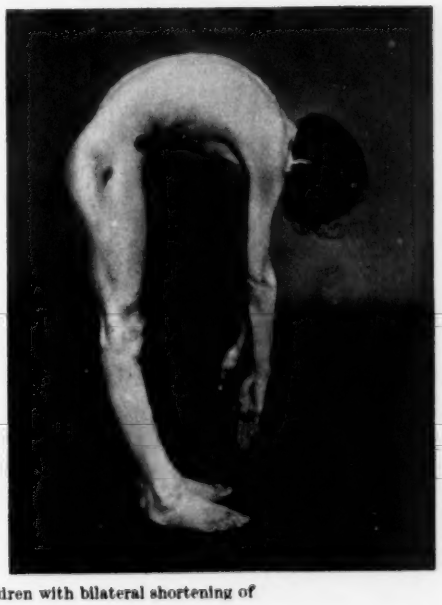
[1] *British Medical Journal*, July 15th, 1933, p. 120.

The first meeting of the new session of the Hunterian Society was held on October 15th, when Dr. W. H. F. Oxley delivered his presidential address, on "The Opportunities of General Practice." At the meeting of the society on November 19th, at the Cutlers' Hall, Warwick Lane, E.C., a discussion on "That the Lay Cult of Health has become Injurious" will be opened by Sir Ernest Graham-Little. The meeting on December 17th will be given up to a discussion on the diagnosis, prognosis, and treatment of coronary disease. The Hunterian Lecture, on "Rehabilitation Surgery," will be delivered by Dr. H. H. Kessler of Newark, New Jersey, on January 14th, 1935, and Professor John Eyre will give the Hunterian Oration on "Undulant Fever: A Retrospect," on February 25th. The annual dinner of the society will be held at the May Fair Hotel on February 14th, and the annual general meeting at Simpson's Restaurant on April 8th.

FIG. 1.—Normal child. Touching toes comfortably. Note anterior superior spine on same level as great trochanter.

FIG. 2.—Same child made to flex further. Note contour of the back unchanged. Anterior superior spine a little below level of great trochanter.

FIGS. 3 AND 4.—Cases to show how pressure on a child with short hamstring muscles hyperflexes the back and does not stretch the hamstring muscles.



FIGS. 5 AND 6.—Cases to show increased curve of back in children with bilateral shortening of the hamstring muscles.

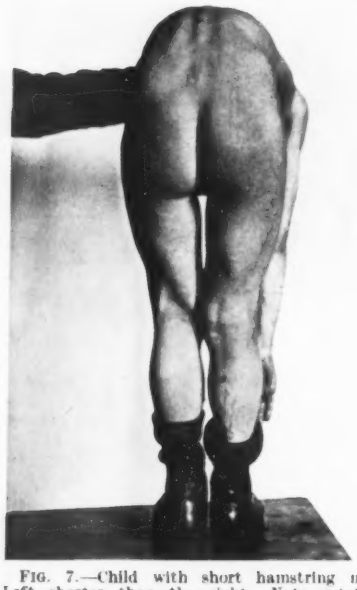
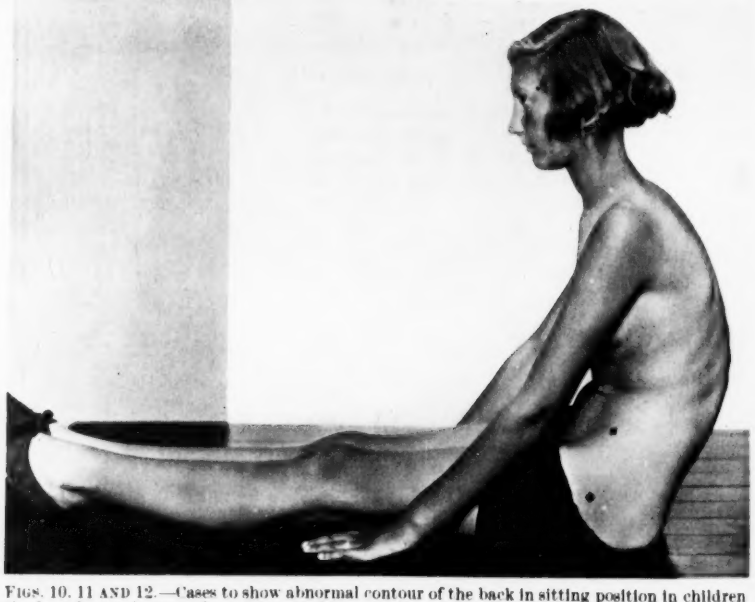


FIG. 7.—Child with short hamstring muscles. Left shorter than the right. Note rotation of vertebrae to left.

FIG. 8.—Bilateral shortening of hamstring muscles. Right shorter than left. Note rotation of vertebrae to right.

FIG. 9.—Right hamstring muscle shorter than left. Note rotation of vertebrae to right.



FIGS. 10, 11 AND 12.—Cases to show abnormal contour of the back in sitting position in children with short hamstring muscles. If such children suffered from an illness requiring them to be nursed in the propped-up position the fronts of the bodies of the vertebrae would be subjected to a continuous pressure, which would be greatly increased during a paroxysm of coughing. All children with short hamstring muscles ought as a routine to be nursed with pillows under their knees.

E. F. SCOWEN AND A. W. SPENCE: EFFECT OF PROLONGED ADMINISTRATION OF ACID EXTRACT OF ANTERIOR PITUITARY ON THE THYROID GLAND OF GUINEA-PIGS

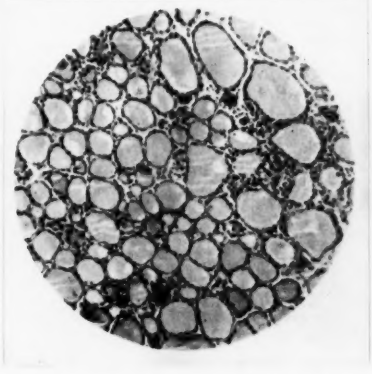


FIG. 1.—Photomicrograph of section of normal thyroid (guinea-pig).

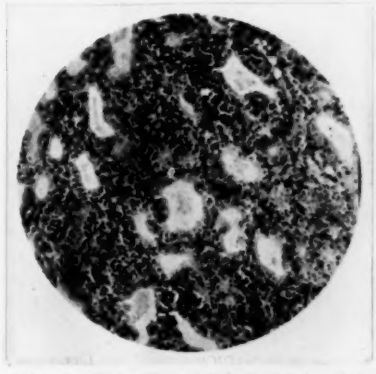


FIG. 2.—Thyroid hyperplasia produced by daily injection of acid extract of anterior pituitary for 3 days (guinea-pig).

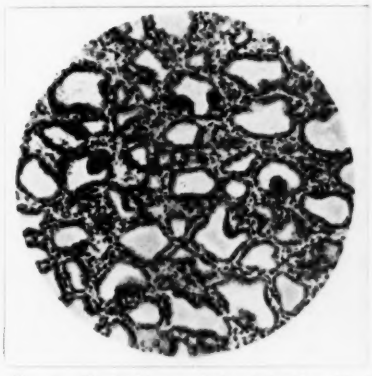


FIG. 3.—Marked hyperplasia of the thyroid of a guinea-pig which received daily injections of anterior pituitary extract for 87 days.

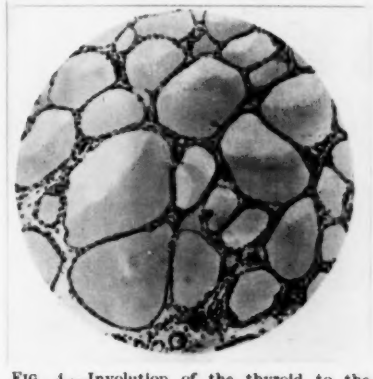


FIG. 4.—Involution of the thyroid to the colloid state in a guinea-pig which received daily injections of anterior pituitary extract for 86 days.

FIGS. 5 AND 6.—Exophthalmos produced by anterior pituitary extract.

FIGS. 7 AND 8.—Normal control guinea-pigs.

OF HYG.

DENIS BROWNE: X-RAY EXAMINATION OF EMPYEMA CAVITIES

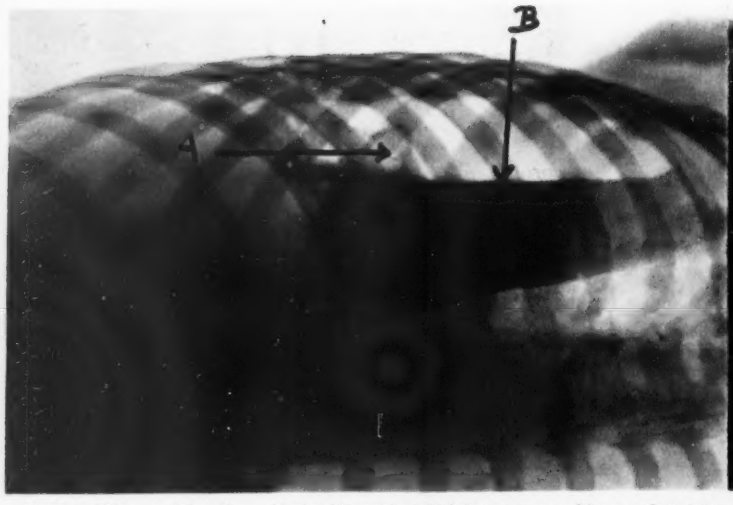


FIG. 1.—Skiagram taken from side to side, with child lying upon sound lung, a fortnight after operation. A. Point of entry of de Pezzer catheter between ribs. B. Fluid level of emulsion, filling half cavity.

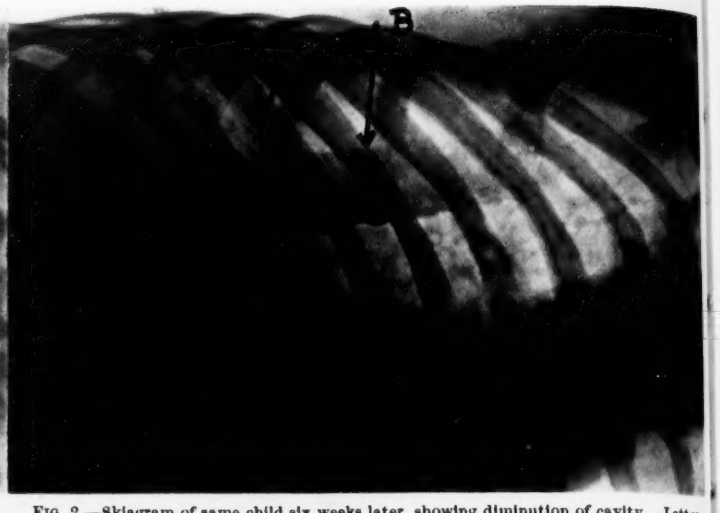


FIG. 2.—Skiagram of same child six weeks later, showing diminution of cavity. Letters A and B as in Fig. 1.

DENIS BROWNE: X-RAY EXAMINATION OF EMPYEMA CAVITIES

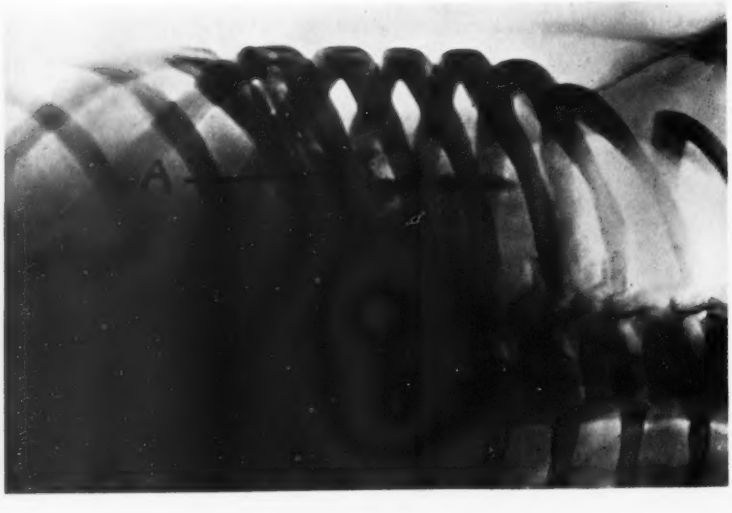
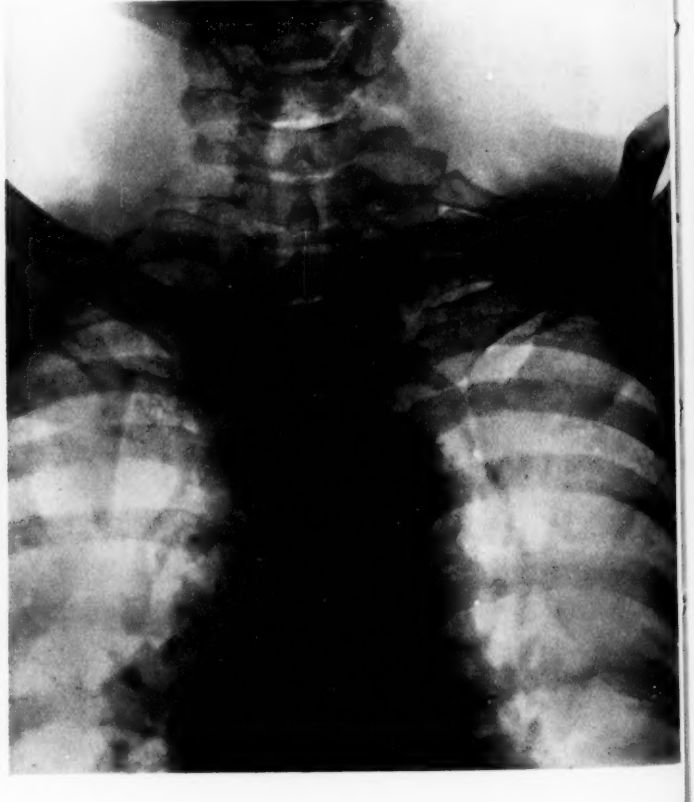


FIG. 3.—Skiagram of same child ten weeks after operation, showing typical final stage, with narrow cavity running upwards from point of drainage.

T. G. QUINN AND GEORGE DAVISON: LEFT SUBCLAVIAN ANEURYSM IN ASSOCIATION WITH CERVICAL RIB



MEDICAL USES OF RADIUM

MEDICAL RESEARCH COUNCIL'S REPORT

The Medical Research Council has issued this week the twelfth of its series of reports upon the radium treatment of cancer and of some non-malignant conditions, summarizing the reports from the research centres for 1933.[1] In addition to describing work done during the past year, it supplies statistical data relating to the after-histories of patients treated in previous years, and contains a section dealing with some purely experimental inquiries into the action of radium. There has been a marked increase in the use of radium without any surgical operation, other than that termed "the surgery of access." Collecting the data contributed by the research centres for the years 1930 to 1933 inclusive, it is shown that a total of 7,955 patients suffering from malignant disease have been treated. Of these, 2,275 were treated by surgery alone (29 per cent.), and 3,415 by radium alone (43 per cent.). In 1933, out of 2,434 patients, 554 were treated by surgery alone (22.8 per cent.), whereas 1,240 were treated by radium alone (50.9 per cent.).

Cancer of the Breast

Surgery, however, still maintains its prominence in the field of mammary cancer, owing to its success in early cases. Yet, since invasion of the axilla reduces markedly the prospects of a satisfactory outcome, it is stated in the report that there is therefore a definite need of radiological methods being explored to the utmost in dealing with extensions to this region. Interstitial radium therapy has been much employed in this part of the body, but it is not a favourable site for this procedure, there being so many important nerves and blood vessels in the vicinity which may easily be damaged and are difficult to restore to healthy functioning. It is suggested that *x* rays may constitute a more suitable agent. In the research centres surgery and radiology are being employed to an almost equal extent. Some of the chief advances in radium therapy of breast conditions have been made in this country.

Radium has been applied interstitially at Aberdeen and at St. Bartholomew's Hospital, both the primary growth and its probable extensions being dealt with simultaneously. After six to eight weeks the primary growth has been removed for investigation. In the last two years at Aberdeen it has been shown that under certain definite conditions of irradiation there are found comparatively few actively growing malignant portions. Results obtained at St. Bartholomew's Hospital indicate that the five-year survival rate is approximately the same for the two branches of treatment, being in each case about 40 per cent. It has now been decided there to combine interstitial radiation with surgery, the breast and glands being excised after radiation, and to compare the five-year survival rate with those of operation and radium respectively. In addition, an intensive histological study will be made of the breast and glands after removal, in order to find out: (1) the histological effects of radium on carcinoma tissue; (2) whether the treatment has destroyed all the tumour cells or left some areas untouched; (3) whether carcinomatous glands are effectively treated by radium; (4) the optimum time for excision of the breast after radiation.

At the Marie Curie Hospital in London a change in procedure is being made. In cases not suitable for radical operation some primary tumours and most of the recurrent growths will be treated by radium alone. Other primary growths will have interstitial radium for the primary focus, and *x* rays for the glandular extensions. Recurrences in the supraclavicular glands will be treated by deep *x* rays. Selected cases of primary cancer will be treated by deep *x* rays alone. Since cancer of the breast belongs to the group of the generally less sensitive types of this disease, the methods employed will be according to the principles of therapy, with special reference to the view of cell maturation elaborated by Coutard.

[1] Medical Uses of Radium. Summary of Reports from Research Centres for 1933. Medical Research Council, Special Report Series No. 197. H.M. Stationery Office. 1934. (9d. net.)

Cancer of the Cervix

At Aberdeen thirty-seven cases of cervical carcinoma were treated during the year, the Heymann technique being practised when possible, or modified as the local occasion demanded. No case of vesico-vaginal or recto-vaginal fistula is known to have occurred. The Marie Curie Hospital reports a steady improvement in the ratio of early cases. Treatment has been by intercavitary radium alone. Histological grading has been studied intensively, and a separate report on this is to be published. No evidence was forthcoming that the adenocarcinomata were insensitive to radiation. Complications have been of rare recurrence, probably on account of slight improvements in the technique. There is still much doubt about the pathogenesis of these reactions. Obliterative endarteritis seems to begin the lesion, and the rectal ulceration is suggestive of a broken-down infarct. The sudden development of massive infiltration, with or without ulceration, which often subsides as suddenly as it appears, is difficult to explain. Radium reaction is less frequent now than formerly. The Scottish associations of the Medical Women's Federation complain, on the contrary, that patients delaying until the disease is very far advanced are still all too common.

Cancer of the Buccal Cavity

At most responsible radium clinics in the country there has been comparatively little difficulty in dealing with primary lingual growths by radium, the treatment being either interstitial or by means of larger units (1 gram and upwards) applied externally. As regards the glands associated with buccal cancer, there seems at present to be about an even balance of opinion and practice between surgical removal and irradiation, either interstitially or externally by radium, or by *x* rays. From Birmingham comes the warning that radium therapy is being demanded by many advanced cases still, and that statistics must be considered to lie under this handicap. The radio-resistant nature of tumours arising in leucoplakic patches has been particularly noted there during 1933, and in three such cases it was found necessary to excise the growth by diathermy after irradiation had failed. A slight improvement in oesophageal cases has followed the distribution of large doses of radon seeds (eight instead of four of 3 mc. each) throughout the length of the growth, and not only in the upper part as previously. The opinion at Birmingham with regard to malignant glands is that the only really valuable treatment is a block dissection, with complete removal of the sterno-mastoid. A new technique has been designed for growths in the tonsil or side of the tongue extending over or round the ramus of the jaw. To avoid trismus resulting from resection of the ramus and needling of the growth, a separate incision is made over the temporo-mandibular joint, and the capsule and ligaments are cut. The effects have been remarkably good, especially in the case of large growths extending from the tonsil into the pterygoid and mandibular muscles.

Other Research

At Aberdeen an investigation into the radiation treatment of adenocarcinoma of the ampulla of the rectum is being conducted. Eight patients, of whom five were technically inoperable, were treated by unscreened radon. In two the growth completely disappeared; three are still alive, with considerable palliation of the symptoms and reduction of the growth; and three died, but in these cases evidence of destruction of the growth in part was demonstrated at the necropsy.

While many cases reported from the centres show the unresponsive character of these growths to radium, others indicate an extraordinary good reaction to properly directed radiotherapy. There remains work to be done in correlating radio-sensitiveness with histological character.

The Royal Free Hospital has obtained good results in cases of functional menorrhagia of middle and later life, menorrhagia accompanied by physical signs, and the menorrhagia of puberty. There were treated 134 cases of the first of these, fourteen of the second, and six of the third.

At the Strangeways Research Laboratory has been investigated the irradiation of chick tissue in the presence

of blood circulation. It was found that degeneration was most evident in areas of active cell division and absent from non-mitotic areas. This has been shown to be a direct effect, which is less apparent after the third day of incubation. A stickiness seems to develop in the circulating erythroblasts, although chemical constituents necessary for clotting are not yet present in the blood. The blood vessels of the area pellucida are more easily damaged than those of the area opaca. At the Middlesex Hospital work in connexion with the histological classification of squamous tumours of the mouth region has been continued, with a view to determining if there is any relation between the histological appearance of a growth and its subsequent clinical behaviour, especially with regard to the response to irradiation. Among other conclusions it is mentioned that liability to metastasis may depend as much on the anatomical site of the growth as on its histological character, a fact, it is remarked, which has been too little considered in assessing the value of histological gradings.

BIRMINGHAM HOSPITALS CENTRE

INAUGURATION BY THE PRINCE OF WALES

The foundation stone of the Birmingham Hospitals Centre at Edgbaston was laid by the Prince of Wales on October 23rd. This ambitious and promising scheme, for the co-ordination of hospital services in the capital of the Midlands, is being carried out on a site of 150 acres (provided by the generosity of Messrs. Cadbury Brothers, Ltd.) near to the University, with whose medical school the centre will be in close connexion. The scheme is expected to cost ultimately one and a quarter million pounds, but only the first instalment of the total enterprise, costing about half that amount, is at present beginning construction. This first instalment, which will be completed in three years' time, provides 500 beds, and the entire scheme is designed to provide 750 beds, together with a separate wing for one hundred paying patients, and the housing of all the appropriate services in a self-contained domain. One feature of the Hospitals Centre will be provision for the treatment of rheumatic diseases by a variety of balneological methods, which will virtually bring the resources of a modern spa to the threshold of Birmingham.

The stone-laying ceremony took place at the spot where the skeleton of the administration block is already rising. The Lord Mayor (Mr. H. E. Goodby) welcomed the royal visitor to the city, and Sir Charles Grant Robertson, chief of the executive board of the Hospitals Centre, as well as Vice-Chancellor and Principal of the University (and formerly, as the Prince remarked in his speech, his own tutor in history at Magdalen College), outlined the objects of the centre. In laying the stone the Prince acclaimed the enterprise as one worthy of the progressive spirit of Birmingham, a pioneer scheme, unlike anything else at the moment being planned or carried out in Great Britain. After remarking on the urgent need for further hospital accommodation in a great and growing city like Birmingham, he said that those concerned had also realized how essential was a working partnership between the hospitals and the medical faculty of the university.

"It is up to the citizens of Birmingham," said the Prince in conclusion, "to see this scheme through. It is a voluntary one, and it is financed without any grants from public authorities, except in so far as the city of Birmingham has contributed to the construction of the necessary roads over the site. When we think of the economic crisis through which we have passed since the original appeal was launched in 1930 the response has indeed been remarkable, but, needless to say, more money is still required. In view of the need for further hospital accommodation and facilities for medical research and training, I would like to think that it will be readily forthcoming, and that the scheme will start three years from now free of debt."

Among those who were presented to His Royal Highness were Sir Gilbert Barling, Bt., F.R.C.S., late Pro-Chancellor of the University, and Dr. Stanley Barnes, dean of the faculty of medicine, who represented Lord Dawson of Penn, President of the Royal College of Physicians of London; and the company included Sir Holburt Waring, President of the Royal College of Surgeons of England, Mr. Horace H. Rew, secretary of the Conjoint Examining Board in England, Dr. C. John Bridge, H.M. Senior Medical Inspector of Factories, Home Office, and Dr. C. M. Wilson, dean of the Medical School, St. Mary's Hospital, London.

NEW MEDICAL SCHOOL BUILDING

After laying the stone the Prince received gifts for the Hospitals Centre Fund. Among those who handed in gifts and had the honour of being presented was Dr. Clement Belcher, who was the first student to receive a medical degree at the inaugural ceremony of the University of Birmingham in 1901. It was announced that the fund had reached a total of more than £735,000, a record for a hospital appeal in Great Britain. His Royal Highness then walked to the site reserved for the new medical school building of Birmingham University, and, at the request of Mr. Walter Barrow, the Pro-Chancellor, cut the first sod. By this double ceremony he inaugurated a scheme which it is the proud belief of the citizens will make Birmingham in the near future one of the greatest hospital and medical school cities in the world. Before leaving Edgbaston the Prince visited the Students' Union, and recorded his name in the visitors' book. He afterwards visited occupational centres for the unemployed, and saw other aspects of social service work in Birmingham. He was also taken to the areas marked for slum clearance, and visited several of the dwellings. It is not before time that Birmingham tackles its housing problem. A recently published survey, by a group of citizens, states that in the seven central wards 19,000 houses, or 41.6 per cent., were found to be below a decent standard of habitation in point of disrepair, insanitariness, or overcrowding.

PATENT MEDICINES LEGISLATION

STATEMENT BY ROYAL COLLEGE OF SURGEONS

The views of the Royal College of Surgeons of England having been asked for by the Standing Committee on Scientific Research of the Economic Advisory Council, the statement printed below was adopted by the Council after receiving the report of a committee, and it now appears in the annual report for 1934, copies of which may be obtained by Fellows and Members on application to the Secretary of the College, Lincoln's Inn Fields, W.C.1.

SALE OF PATENT MEDICINES AND APPLIANCES

The sale of secret remedies has in this country reached very large dimensions, and it is desirable in the interests of the public that it should be placed under some control. Among the objectionable features of the uncontrolled sale of these remedies we may mention the following: (1) The remedy may contain some drug which is injurious, such as acetanilide (headache powder). (2) More generally the remedy is purely fraudulent, containing no substance of therapeutic value. (3) The claims made for the remedy are always exaggerated and are, in general, purely fraudulent.

In many other countries secret remedies are either not permitted at all or are only allowed under the most stringent control. Thus in Germany a large group of preparations can only be sold under medical prescription, and may not be publicly advertised. In Austria the composition must be disclosed. In France they can only be sold under Government approval, whilst in Italy the prescription must be approved by the Government and accompany every package. In the United States the sale of medicinal preparations is regulated by the Food and Drugs Act, and every package must carry a label with the exact prescription. In Australia both the medicines themselves and all printed matter related to them are strictly supervised, and, in general, the prescription must appear upon the label.

In England it would appear that there is no effective control either of the composition of secret remedies or of the claims made for them, and, in fact, proprietary medicines are definitely excluded from the operation of the Food and Drugs Act. The only restrictions are those relating to scheduled poisons and to remedies for venereal disease. The situation cannot be better expressed than in the words of the Select Committee on Patent Medicines in 1914:

> "For all practical purposes British law is powerless to prevent any person from procuring any drug, or making any mixture, whether potent or without any therapeutic activity whatever (so long as it does not contain a scheduled poison), advertising it in any decent terms as a cure for any disease or ailment, recommending it by bogus testimonials and the invented opinions and facsimile signatures of fictitious physicians, and selling it under any names he chooses, with payment of a small stamp duty, for any price he can persuade a credulous public to pay."

Recommendations of Select Committee

The Select Committee recommended: (1) That the administration of the law governing the advertisement and sale of patent, secret, and proprietary medicines and appliances be co-ordinated and combined under the authority of one Department of State. (2) That this department be the Ministry of Health. (3) That there should be a Register of Manufacturers, Proprietors, and Importers of these remedies and appliances, and that every such person should require to obtain a certificate of registration. (4) That an exact and complete statement of the ingredients of every such remedy, and a full statement of the therapeutic claims made for any remedy or appliance, be furnished to the Department. Such information to be regarded as confidential.

The Committee made various recommendations for machinery to ensure the enforcement of their proposals. After careful discussion they definitely rejected the proposal that each article should bear a label describing its composition. The Committee referred to the enormous sums spent on advertising patent medicines, and to the opposition which may be expected from the Press to any interference or control.

Proposed Legislation

Based on the proposals of the Select Committee, a Bill was introduced by Viscount Astor in 1920, but was withdrawn. In 1931 Mr. Somerville Hastings introduced a Bill supported by the Public Health Advisory Committee of the Labour Party, but this also was dropped. A Bill is at present being considered by the Parliamentary Committee on Food and Health, the object of which is to prohibit the advertisement and sale of medicines or appliances for the prevention, cure, or relief of certain diseases and conditions, the use of fictitious testimonials, and the offer of diagnosis and treatment by correspondence. The representatives of the patent medicine trade declined to support any Bill on the lines of the Select Committee, but it agreed not to oppose a measure such as has now been drafted.

In the opinion of the Council of the Royal College of Surgeons the problem can only be adequately dealt with on the lines laid down by the Select Committee of 1914 by bringing the sale of proprietary medicines and appliances under the control of the Ministry of Health. Such a control should ensure: (1) That the article in question is not injurious. (2) That the description of its therapeutic action is not fraudulent. (3) That the sale of the article in question and the methods of its advertisement are not against the public interest. (4) That no medicine or appliance is advertised as a cure for any of the following diseases and conditions:

Blindness.	Epilepsy.
Bright's disease.	Fits.
Cancer.	Locomotor ataxy.
Consumption.	Lupus.
Diabetes.	Paralysis.

This opinion was duly communicated to the Committee on Scientific Research of the Economic Advisory Council.

Nova et Vetera

THE EXECUTION OF CHILDREN

The Children and Young Persons Act, 1933, in Clause 50, says: "It shall be conclusively presumed that no child under the age of 8 years can be guilty of any offence." In Section 53 it is enacted that sentence of death shall not be pronounced on or recorded against a person under the age of 18 years. As a contrast to present-day views it is interesting to consider the attitude to juvenile crime which prevailed in olden times, when the ferocity of the law allowed such atrocities as the hanging of a child of 8 for arson and the burning alive of a girl of 13 for murder. An account of a few selected cases will be of interest to doctors and sociologists, and all who are concerned in the treatment of the juvenile criminal.

At Bury Assizes in 1748 William York, aged 10, was convicted before Lord Chief Justice Willes of the murder of a girl of 5, and was sentenced to death. The Lord Chief Justice was doubtful whether he ought to allow one so young to be hanged, so he postponed the execution till he had an opportunity of consulting the rest of the judges.

The following were the facts of the case. Both the children were parish children under the care of a parishioner, with whom they lived. On the day the murder happened the man of the house and his wife went out early and left the children in bed together. When they returned from work the girl was missing. The boy, when questioned, denied any knowledge of her whereabouts. A search was made, and it was found that a heap of dung near the house had been recently disturbed. This heap was searched, and buried in it was found the body of the girl, cut and mangled in a terrible manner. The boy was at once charged with the crime. He denied all knowledge of it. He was closely questioned, and then said he would tell the truth. He said the little girl was wont to "foul" her bed, and had done so that morning. (The bed was examined, and this was found to be untrue.) He took her out of bed and carried her to the dung heap, and with a large knife mangled her body and buried it in the heap.

The judges, having considered all these facts, agreed unanimously

> "that supposing the boy to be guilty there was clear evidence of a mischievous discretion and he was certainly a proper subject for execution and ought to suffer, for it would be a very dangerous consequence to have it thought that a child might commit such a crime with impunity. There are many crimes of the most heinous nature, such as in the present case the murder of young children, poisoning parents or masters, burning houses, etc., which children are very capable of committing; and which they may in some circumstances be under strong temptations to commit; and therefore, though the taking away the life of a boy of 10 years old may savour of cruelty, yet as the example of this boy's punishment may be the means of deterring children from the like offences; and as the sparing of this boy, merely on account of his age, will probably have a quite contrary tendency, in justice to the public the law ought to take its course; unless there remaineth any doubt touching his guilt."

In this general principle all the judges concurred. Two or three, with some slight element of mercy, suggested another reprieve for the boy, in case there might be any element of doubt as to his guilt. This was granted, but as the Lord Chief Justice received no evidence to help the boy he ordered his execution. However, the Secretary of State later granted him a pardon upon condition that he would enter the Navy, and thus the horrible tragedy of the execution of this child was averted.

At Abingdon in 1629, John Dean, aged 8, was tried for burning two barns in Windsor, and as it appeared he had "malice, revenge, craft, and cunning," he was sentenced to death and actually hanged.

At Dorchester, in 1794, a girl, Elizabeth March, was convicted of the murder of her grandfather, and was executed; and in 1828 a boy, Giles East, aged 17, was convicted at the Kingston Assizes for carnally knowing

a girl of 9 years, and was hanged. There is also recorded at a much earlier date the case of a girl of 13 who was burnt alive for the murder of her mistress. There is a record of a case of a child *under 7 years* who was tried for murder. The jury found that when the crime was committed the child was under 7, and a pardon was therefore granted.

The method of hanging in these old days was much more cruel and brutal than that of to-day. The victim was placed in a cart under the gallows, the rope put round his neck, and the cart drawn away, or he mounted a ladder, which was afterwards withdrawn. In all cases death was prolonged, and due to slow strangulation. Sometimes the friends (for executions were in public until 1868) or a kindly executioner would hang on to the feet of the victim, and thus bring about death more quickly. It was about sixty years ago that the method of the long drop was adopted ; this caused instant death by breaking the neck. Some very good specimens of fracture-dislocation of the cervical vertebrae by execution are to be seen in the museum of the Royal College of Surgeons in Lincoln's Inn Fields, London.

L. A. PARRY.

England and Wales

Welsh National Memorial

In the twenty-second annual report of the King Edward VII Welsh National Memorial Association (Prevention, Treatment, and Abolition of Tuberculosis), which covers the twelve months ended March 31st, 1934, are included the reports of the council of the Memorial Association, the principal medical officer, the directors of research and education, the research bacteriologist, medical superintendents of hospitals, and area tuberculosis officers. Five clinical studies are published relating respectively to epituberculosis, milk infection in children, miliary tuberculosis at the clinic, an analysis of cases admitted to the South Wales Sanatorium in 1933, and hydatid disease of the lung in a child. The report concludes with medical statistics (Memorandum 37 T revised) concerning the work of the dispensaries and hospitals and the immediate results of treatment. Successful progress was made during 1933 with the work of erecting the new hospital at Hayes Farm, Sully, which will contain 300 beds. The extension programme of the council envisages the provision of 500 new beds, and it is proposed to place the remaining 200 in a hospital near Swansea. Discussion is proceeding as regards a suitable site. At a conference held in Carnarvon last November various practical recommendations were approved for submission to the councils of certain northern counties in Wales where there is a high tuberculosis death rate. Two Welsh-speaking health visitors were also appointed for the Anglesey and Carnarvon and the Merioneth and Montgomery areas respectively ; they began work last March. Dr. D. A. Powell, principal medical officer of the association, records decreases in the numbers of new cases and of contacts examined, the latter being due partly to shortage of staff. There was, however, a rise in the incidence of, and the death rate from, pulmonary tuberculosis in young adults. A statistical table shows that the age period 15–25, and particularly the lustrum 20–25, is by far the most susceptible for pulmonary tuberculosis, and the decade 5–15 for non-pulmonary. It has been suggested that we are reaping the aftermath of the war, persons belonging to the most hardly hit age, about 20, having been born during the war years. A more important factor is thought to be the industrial depression, with its repercussions on physique, nutrition, and morale, on the ebb and flow of the population, and, therefore, on the individual make-up of that population as regards age, sex, and vigour. Professor Cummins, director of research, states that acid-fast bacilli other than the tubercle bacillus have been receiving continued study in view of their appearance in the sputum of patients who were certainly not tuberculous. Two strains have now been cultivated and are under detailed examination. Investigations on sensitivity problems promise useful results ; one series has cast doubt on the value of the subcutaneous test in tuberculosis, a considerable number of positive reactions having been obtained in patients free from any of the signs or symptoms of tuberculosis, though probably infected to a greater or less extent in a degree consistent with health. Dr. R. Owen Morris, director of education, contends that emphasis should not be laid on the negative policy of avoiding disease, but rather on the positive virtue of keeping well. The laws of health should be more widely taught to the young, who alone have sense to profit therefrom, and have not yet contracted faulty habits of thought. As in previous reports of the association, a wide range of topics is covered in the various incorporated statements by medical officers of hospitals and dispensaries. Dr. R. J. Matthews of Mid-Glamorgan, for example, expresses the view that tuberculosis officers should devote themselves to treatment rather than to differential diagnosis, which could be left more economically to medical practitioners and hospitals. He also thinks that hospital dietaries could be made more palatable and less monotonous, with therapeutic benefit, while institutional regulations could be relaxed with similar advantage. Dr. R. M. Hiley of Pontypridd and Rhondda stresses the value of the dispensary as a unit in the tuberculosis scheme when associated with good domiciliary work. Others suggest that, while present-day patients are seeking medical advice earlier than used to be the case, the disease is more extensive when first detected, indicating that it is now of a more acute type. Reference is made to the importance of realizing that a definite history of pleurisy in adults means in a very large proportion of cases definite—not threatened—tuberculosis, with the disease in its most favourable form for treatment. Moreover, prolonged or frequently recurring respiratory attacks in young persons should be regarded with suspicion and the patients subjected to careful examination. The steady advance of pneumothorax as a valuable line of treatment is noted. In these and many other respects this annual report sheds light on the way in which the treatment and the prevention of tuberculosis are advancing side by side, the conclusions being reached by a survey of an adequately large number of patients by physicians of varying outlook and long experience.

Cerebro-spinal Fever in England and Wales

In a communication to the Office International d'Hygiène Publique, published in the September *Bulletin*, Dr. M. T. Morgan gives the following survey of the incidence of cerebro-spinal fever in England and Wales. The notifications, which in 1931 had amounted to 2,157 in a population of about forty millions and in 1932 were 2,136, fell to 1,695 in 1933. In the West Riding of Yorkshire, where the increase was greatest, the notifications in 1933 were not half the number of those in 1931. The general incidence of the disease, therefore, though still above the normal, shows a well-marked decline. Examination of the serological type of meningococci from 169 cases of cerebro-spinal fever during the period April 1st, 1933, to March 31st, 1934, showed that 112 (66 per cent.) belonged to Group I and fifty-seven (34 per cent.) to Group II, whereas during the war the epidemic of cerebro-spinal fever was caused by meningococci belonging to the two groups in about equal proportions. During the period 1931–4 the epidemic showed little tendency to

spread beyond the West Riding, although the disease showed some degree of abnormal frequency in the adjacent county of Derbyshire. The cases in which meningococci of Group II were isolated did not differ clinically from those due to Group I, though that may partly be due to the disease being principally found in infants. In 811 cases in which serum treatment had a fair chance of acting the fatality was 26.9 per cent., although in many of these cases it was not employed until late in the disease.

The Health of Holborn

The report of the medical officer of health for Holborn for 1933 contains many reminders of the late Dr. C. W. Hutt's wide outlook and his enthusiasms, as well as of his attention to detail. It is interesting to note, in view of some of his previous reports, that nuisances arising from litter on the public highway have been mitigated, following steps taken by the dust inspector to secure the use of properly covered ashbins in streets where the refuse is put out on to the footway. Efforts have also been made to prevent the turning over of the refuse by children. Routine inspections were made of 533 factories, 614 workshops, and 3,376 workplaces. It is remarked that workshops are automatically converted at a very small cost into factories by the installation of a small electric motor ; the health conditions then may no longer be inspected by the staff of the borough council, except as regards sanitary accommodation. The more important industries carried on in these factories are printing, engineering, bookbinding, and metal work. There were 1,046 inspections of market streets containing stalls at which meat, fish, fruit, and vegetables are sold. This regular inspection helps to secure the sale by stallholders of sound food only, and also discourages casual and unsatisfactory hawkers who generally avoid streets that are under strict supervision. The large day population in the borough calls for many eating-houses ranging from the "cookshop," where cheap meals are provided, to the high-class restaurant. Inspection of the kitchens of such places has become a routine but important part of the work of the public health department. Generally, it is stated, the kitchens are found to be satisfactory and the food clean and wholesome. Now and then, however, some action is needed to ensure compliance with a reasonable standard of efficiency. The report refers to the urgent need of establishing definite standards for cream, cheese, and other foodstuffs ; a small permanent committee or board of reference should be appointed with power to make recommendations or amendments. The great advances in the scientific investigation of foodstuffs have made new standards imperative. Such a body should be in a position to consider the new methods of examination which are constantly being evolved, and to prescribe the appropriate value to be attached to them in determining the purity, or otherwise, of articles of food.

Conference on Mental Welfare

A conference on mental welfare will be held in the Great Hall, British Medical Association House, Tavistock Square, W.C., and at the Royal Agricultural Hall, Islington, N., on Wednesday to Friday, November 21st to 23rd, inclusive. Arrangements have been made to hold this conference in the same week as the Public Health Congress, so that the Central Association for Mental Welfare may collaborate with the committee of that congress for one session, and also that the travelling expenses of delegates may be saved. An exhibition of the work of defectives who are being taught under the scheme organized by the Central Association for the Middlesex County Council in occupation and industrial centres, and in their own homes, will be on view in a room adjacent to the conference hall at B.M.A. House. On the first morning there will be a joint session with the Public Health Congress at the Royal Agricultural Hall on boarding out from mental hospitals. when the chair will be taken by Mr. L. G. Brock, chairman of the Board of Control. The morning of the second day will be devoted to a discussion on modern tendencies and developments in work for mental defectives, with special reference to institution care, community care, and research. In the afternoon Mr. Brock will preside over a discussion of the voluntary provisions of the Mental Treatment Act. Friday morning is left free for delegates to be able to attend a session of the Public Health Congress on voluntary sterilization and the report of the Departmental Committee on Sterilization. Friday afternoon will be spent in a discussion of the work of the educational psychologist, and of some experiments in the training of the retarded child. Mr. Herwald Ramsbotham, Parliamentary Secretary to the Board of Education, will give an opening address. Tickets, at 10s. 6d., to include advance copies of the papers, will also admit to the Wednesday and Friday morning sessions of the Public Health Congress. They can be obtained from the secretary of the Central Association for Mental Welfare, 24, Buckingham Palace Road, S.W.1. A luncheon for delegates will be held at the Hotel Russell on Thursday, November 22nd, at 1.15 p.m., when Sir Hilton Young, Minister of Health, will speak. Luncheon tickets, price 6s., must be obtained beforehand from the offices of the Central Association.

Instrument Manufacturers at Dinner

The annual dinner of the Surgical Instrument Manufacturers' Association (Incorporated) was held at the Holborn Restaurant, London, on October 26th, with the new president, Mr. H. Guy Drew (Down Brothers, Ltd.), in the chair. Mr. W. H. Ogilvie, in proposing the health of the association, contrasted the progress of surgical instrument manufacture with that of the motor-car industry, the latter seeming to him to typify all that the former should not become. The consumers in the motor-car industry were becoming every year less skilled in technique and more desirous of appearance and speed. Cars were turned out by mass production, in which craftsmanship was sacrificed. On the other hand, the making of surgical instruments was still a craft, even though routine work had to be done to some extent. Its products were built to meet special needs, and the user and the manufacturer were continually in counsel. The making of surgical instruments demanded long training, hard work, the best materials, and the most scientific testing. The maker had to be an expert in wood, leather, metal, glass, something of a physicist, perhaps a chemist, certainly a mathematician, and also a fashion designer. In Mr. Ogilvie's view the fourth age of surgery was near. The first age was the primitive one, extending into the lifetime of some of those present, when, although it was true that bones were set, limbs amputated, and stone removed, the patient very often died, and the instruments used were not greatly different from those employed in Pompeii. The second age started with Lister and ended with the war. The third age was one of consideration and criticism, the collection of enough experience to be able to abandon bad methods and eliminate unnecessary steps, until technical skill had reached a stage when it seemed to some it could not go further. But in the new epoch, with finer contrivances, new opportunities for the surgeon would arise. Already there were available instruments which reduced considerably the time spent on major operations, or enabled stitches to be put with mechanical exactitude into hitherto inaccessible positions. He concluded with an expression

of his own personal gratitude to the surgical instrument maker. He had taken him on occasion some Heath Robinson-like drawings, and from them the instrument maker had contrived something exactly to his purpose—really his (the surgeon's) own instrument, though he was probably the only person who could recognize it as such. Mr. Drew, in response, spoke of the astonishing number of new patterns which, at the call of the profession, the instrument makers were required to produce. In view of this great fertility of invention it was important that the industry should be as free as possible from restrictions and the domination of outside interests. He mentioned that it was proposed to form an institute to look after the education of those entering the industry. In reply to the toast of "The Guests," proposed by Dr. A. N. Gardner, Dr. G. C. Anderson, Medical Secretary of the British Medical Association, also spoke of the service which the craft had rendered to the profession, and through them to the community. He mentioned that the hosts of that evening had co-operated with the British Medical Association and other bodies in furthering a Bill to prevent the indiscriminate advertising of surgical and other appliances. Although the proposed measure was not as far-reaching as had been hoped, yet the Bill, if it could be got through, would do much to redress a very present evil. Dr. Anderson also mentioned that the register of medical auxiliaries, with which the British Medical Association had had much to do, had taken a wider connotation, and he hoped that in course of time all who were occupied in any branch of work ancillary to the medical profession would be placed on a national register.

Duration of L.C.C. Specialists' Sessions

The London County Council as recently as June last decided that a session in relation to the employment of all consultants and specialists should be a period of approximately two and a half hours' duration. The Hospitals and Medical Services Committee, however, has decided that the request of an assistant physician for *x*-ray work at one of its hospitals that the length of his sessions should remain at two hours is one that should be granted, his remuneration remaining unaltered. In this particular case the duration of the session was two hours under the terms and conditions of service laid down by the late authority at the time of the specialist's appointment. He also, in order to economize time, owing to the necessity for "tuning up" the *x*-ray apparatus before it can be used on each occasion, works in double rather than single sessions, and it is stated that the work can be done in sittings of four hours each. The situation of the hospital requires a journey by car of about an hour each way from and to Harley Street, for which no travelling expenses are payable.

Reconstruction of a London Fever Hospital

The Hospitals and Medical Services Committee has submitted to the London County Council proposals for reconstructing and modernizing the North-Eastern Hospital for Infectious Diseases, South Tottenham. At present the hospital contains 661 beds, of which 509 are in temporary buildings. The new buildings will provide for 608 patients, making, with the 152 beds in existing permanent buildings, a total of 760, or just upon one hundred more than at present. The work is to be spread over three or four years, so as not to affect materially the patient accommodation at the hospital. The new buildings will comprise eight two-story general ward blocks, two two-story isolation blocks, and four single-story buildings, containing patients' receiving and discharge sections and other departments. Each of the general ward blocks will contain sixty-two beds, and on each floor there will be twenty beds in open wards divided by dwarf glazed screens into bays of four beds each, also five one-bed and three two-bed isolation wards. A T-shaped plan has been adopted for the open wards, so that from a centrally placed combined ward kitchen and duty room most of the patients can be kept under observation. The planning of the new blocks will secure the maximum of sunshine, together with effective ventilation, as a folding type of casement window will be provided to enable practically open-air conditions to be secured without movement of beds. At the outer ends of the wards sun verandas will be provided. Each of the isolation blocks will contain fifty-six single-bed rooms, with a centrally planned entrance, duty room, and sanitary unit. An operations block is to be erected, containing on the ground floor an operating theatre, anaesthetizing room, sterilizing and preparation rooms, and an *x*-ray and light treatment unit with separate entrance; and on the upper floor a teaching section, with lecture room, demonstration room, library, and laboratory of three rooms. The estimated cost of the work is £209,443.

Scotland

Biology in Education

A Scottish national conference on "The Place of Biology in Education," organized by the British Social Hygiene Council, met in the City Chambers, Edinburgh, on October 19th. Sir Basil Blackett acted as chairman, and the Rt. Hon. Sir Godfrey Collins, Secretary of State for Scotland, opened the conference, which was attended by some 160 delegates representing Scottish Government departments, universities, local authorities, and educational institutes. Professor F. A. E. Crew, in a paper on "Biology Applied to Human Problems," said that a serious disability of the modern world was the sense of purposelessness which was encountered on all sides, and it was important to remove this from the minds of those to whom the future belonged. To numbers of young people the present seemed to be meaningless, with the result that they were apt to cultivate a harmful hedonism or to attack enemies created by their own ignorance and imagination. In the teachings of the biological sciences there might be discovered serenity, hope, and purpose, which could give enjoyment to the acts of living, and of all the adventures of to-day the greatest was to be found in the search for knowledge. Man had performed remarkable feats in the past by changing the characters of domesticated animals and cultivated plants to his own advantage, and by the same methods mankind might be refashioned if it only knew what it wanted, and wanted this sufficiently ardently. There was nothing in biology which denied that the universe would continue to be as creative in the centuries to come as it had been in the past, but development and differentiation must be controlled and directed by man. Mankind was able to destroy or control all living competitors for supremacy, but the continuance of mankind was not necessary for the advancement of life, and if man did not continue to advance, some other form of life would occupy his place. The future might see types of humanity and of social organization very different from those existing to-day. Professor James Ritchie (Aberdeen) said that attempts to make a school course in biology a kind of attenuated university course were sure to end in disaster. The teacher of biology at present required to have an honours degree in science, but this was a useless requirement for teaching biology in the schools. The honours year for a degree in science was a year of

specialized research, which could have very little bearing on the teaching of biology to school children. If a student had taken a particular science subject, he could be regarded as having the necessary qualifications for teaching that subject, and an extra year would be more profitably spent on an intensive study of common British animals and plants than on doing honours work. This study should not be of the structure and differentiation of animals and plants, but should be an investigation of their life-histories and environment. Sir Thomas Holland, Principal of Edinburgh University, who presided at the afternoon session, said with regard to the study of biology that there was at present the difficulty that students had to take this as an extra subject, and some means must be found of getting over this difficulty, as, for instance, by co-operation between the universities and the schools. He was not sure that it would not be a good plan to make biology a subject for entrance to a university course. Professor James Ritchie considered it was an astonishing sign of the times that, whereas at every stage of education biology was being accepted as a necessary ingredient, the General Assembly of the Church of Scotland should, in 1934, have abolished the only chair of natural history in the Church colleges, which had been occupied in succession by Professor Henry Drummond and Professor J. Y. Simpson. The suggestion that natural science could be adequately taught to divinity students by the professor of another divinity subject showed a strange ignorance of the progress of the study of life and of the equipment desirable in men who were to guide the people in the ways of religious and social advancement. Dr. J. B. Orr, Director of the Rowett Institute, Aberdeen, who summarized the day's discussions, said that they were moving on to a time of a higher material standard of life, but also to a time of a higher intellectual outlook. There was especial need in the direction of affairs of men who had a biological outlook, and all who set themselves to guide and direct the people should have a systematic training in biology. On his recommendation a resolution was adopted by the conference requesting educational and administrative authorities to do their utmost to secure greater prominence for general biology at all stages of education.

University of Edinburgh

At the half-yearly meeting of the General Council of the University of Edinburgh, held on October 26th, the Business Committee reported that the total enrolment of full-time students in the universities of Great Britain for the session 1932–3 had been 50,155, of whom 74.3 per cent. were men and 25.7 per cent. women. The medical faculties in the British universities had shown an increase of 807 students. Of the total students 35,813 were in England, 10,975 in Scotland, and 3,367 in Wales. This showed a considerable excess of university students in Scotland as compared with England in proportion to the total population. The total disbursements for Edinburgh University during 1933 had amounted to £293,764. Principal Sir Thomas Holland, in a survey of the university during the year, said that out of the total of 4,478 students in British universities from outside the British Isles Edinburgh had 505, while Oxford had 524 and Cambridge 538. It had been agreed at a universities congress in Edinburgh in 1931 that as a general principle students from over-seas should, as a rule, be discouraged from coming to British universities to take a first degree, but that they should be encouraged to come for special training or post-graduate instruction. In Edinburgh an adviser of over-seas students had been secured in the person of Mr. Gaudin, a former master at Merchiston, and Sir Thomas thought that the distant parent or guardian had now no good cause for feeling alarmed about the life and comfort of the boy who came to Edinburgh University. Since the 350th anniversary celebration last year of the foundation of Edinburgh University, over 1,000 new members had joined the Graduates' Association. There had also been up to date an increase of 174 in the number of students in the faculties of medicine, science, law, divinity, and music, although there had been a fall in those joining the faculty of arts. A special feature in the university had been the progress made in the various forms of physical training instituted five years ago under the control of Colonel Campbell. Physical training for the ordinary student was of more importance than record breaking by recognized athletes. With regard to accommodation, the provision of hostels was increasing, and 527 students were now provided for in this way, or 14 per cent. of the total. The increase of modern transport facilities meant, however, that a larger number of students lived at home in the districts surrounding Edinburgh, or 47 per cent. of all the students. Of the remaining 39 per cent. there were many who would gladly enter hostels if accommodation were available.

Glasgow Graduation Ceremony

At a graduation ceremony held in Glasgow University on October 20th, Principal Sir Robert Rait conferred degrees on 116 students, including 104 students of medicine. In congratulating the graduands the Principal said that the progress of knowledge in their own time had added greatly to the burdens which fell upon the student of medicine. While students of other subjects could choose what they would study, there was a tendency for the layman to demand that his doctor should know everything about every disease. As fresh discoveries were made and new discussions arose, the universities and the General Medical Council would have to consider important questions about the length and nature of the medical curriculum. Students did not pass from an exacting training to an easy life, and they must not consider the layman unreasonable in his demand. The latter trusted them because of the long and glorious tradition of the medical profession. To every generation the profession had given a response by increasing its power to heal. The exercise of the will to heal included continuance of studies as opportunities might serve. It also included the duty of keeping fit, the display of unwearied patience and self-restraint, the power of inspiring hope, and the sacrifice of ease and comfort.

Life Statistics in Scotland

A supplement to the seventy-eighth annual report of the Registrar-General for Scotland, which was summarized in these columns on October 20th, 1934 (p. 736), contains a report on life tables by the Government Actuary. It is pointed out that no complete official life tables based on Scottish statistics have appeared since those contained in the nineteenth annual report of the Registrar-General for Scotland based on the census of 1871 and the deaths of that year. The population of Scotland at the 1931 census was 4,842,980 ; this was a decrease in the ten years since the previous census of nearly 40,000. This census population was smaller by some 12,000 than the calculated figure. It was found that the mortality of married men was much lighter than that of single men or widowers, and that the mortality of widowers was heavier than that of either of the other classes. There was less difference in the case of females. At every age, however, the rates of mortality of widows were appreciably heavier than those of single or married women. The mortality experience was investigated in Edinburgh and Glasgow, in the twenty-

four large boroughs excluding these two cities, in the northern counties where the population is sparse, in the central counties, which form the industrial area, and in the southern counties, which are predominantly rural. It was found that the mortality rates for Edinburgh were more favourable than those for the country generally at the lower ages in both sexes. The heaviest rates were found in Glasgow, where at every stage of life the mortality was less favourable than that of the country as a whole. As the population of the city of Glasgow was approximately one-fourth of the total population of Scotland it followed that this mortality experience affected materially the rates shown in the Scottish national tables. Density of population, accompanied presumably by a considerable element of unsatisfactory housing and environment appeared to be the factor to which excess of mortality over the average of the whole country was traceable, and incidentally created a comparatively high national average because the population to which these unfavourable conditions were applicable included 2,631,320 persons as against 2,211,660 living under more favourable conditions. It is apparent from comparative tables that between the censuses of 1921 and 1931 there was a substantial improvement in the vitality of the people of Scotland. The probability of a child, whether male or female, dying in the first year of life decreased by nearly 12 per cent. The decrease in the mortality rates was most marked at the younger adult ages, and at the age of 30 amounted to over 20 per cent. At the advanced ages, however, there was evidence of deterioration, and the death rates at ages over 80 were greater in 1931 than in 1921. The supplement to the report may be obtained from H.M. Stationery Office, 120, George Street, Edinburgh (price 1s. net).

Extension of Glasgow Mental Hospital

At the commencement of operations for the building of an extension to Hawkhead Mental Hospital, Glasgow, it was pointed out that the Glasgow Health Department now controlled 9,000 beds, which accommodated 50,000 patients annually. When the present scheme was completed there would be provision for a further 200 beds for mental cases, and a nurses' home with accommodation for 124 nurses. These buildings would cost about £120,000. A new experiment was being tried of eliminating the boiler house and heating the water for the institution by electricity, which, it was thought, would be cheaper than the coal fire.

The nineteenth annual report of St. Dunstan's for the year ended March 31st, 1934, is able to record successes which justify its appeal for more money. The institution still looks after about 2,000 men in one way or another, and nineteen new cases of war blindness were admitted during 1933, including five gas cases, the pernicious effects of which had been delayed for over fifteen years (see *British Medical Journal*, October 27th, 1934, p. 769). In addition to the 2,000 St. Dunstan's looks after about 5,000 of their dependants. More work has been found for blinded masseurs, telephone operators, and other commercial and business men, while home-workers and craftsmen are still assisted. More than a quarter of a million articles made by them were sold last year—about the same number as in 1932. The large convalescent and holiday home at Brighton is also a training centre, and the wide variety of occupations which are available now for skilled men, though blind, is illustrated well in the report. More than a hundred are qualified masseurs, either attached to hospitals or in private practice. Nearly 200 poultry farmers are at work, many having been trained in the St. Dunstan's model poultry farm at King's Langley. Between 200 and 300 are keen gardeners, and all who wish are taught during their general training to play some musical instrument. The institution has its own dance band and singers.

Reports of Societies

PROGNOSIS IN CORONARY OCCLUSION

At the meeting of the Section of Medicine of the Royal Society of Medicine on October 23rd a discussion took place on the ultimate prognosis of coronary occlusion.

Professor JOHN HAY of Liverpool, in opening, said that prognosis was the most difficult task in medicine. A statistical approach, of course, was available, but it was primarily actuarial in its usefulness. A long series of cases helped one to assess with some confidence the true prognostic value of the various factors. There were two essentials in arriving at an opinion as to the future of a patient suffering from coronary occlusion: (1) a clear conception of the actual happenings in the heart, the underlying pathology, the changes preceding and following the coronary block; (2) the history of the disease condition. The future efficiency depended upon the extent of the necrotic area, the relative proportion of muscle fibre involved, and the integrity of the remaining myocardium. Occlusion might come suddenly and without warning, or there might have been an increasing liability to anginal pain or cardiac failure of the congestive type. Coronary occlusion having taken place, the patient might die suddenly from shock, or death might occur within a few weeks from ruptured heart. Cardiac failure of the congestive type might develop—rapidly from the onset of the occlusion; later on, slowly from the general deterioration of the myocardium. Those who survived the shock did so with a gravely crippled heart, and, of course, with the factors still persisting which had predisposed to the original occlusion. On the other hand, the patient had had his lesson, he was probably under medical supervision, and was prepared to live within his limitations.

The chances of surviving the first attack were difficult to assess because many of the milder cases escaped diagnosis, and those in which death occurred suddenly at the onset were often not included in the published statistics. The initial mortality was heavy. Carey Coombs, in a total of 144 patients, reported forty-nine deaths in or very shortly after the initial attack; of the surviving patients, thirty-two died within twelve months. A number of figures, not greatly different, from other observers were quoted. Of the survivors it could be said only that sooner or later they would die a "cardiac death." They could be divided into two groups. The first consisted of those in whom the cardiac disability was shown by an increasing tendency to dyspnoea and a gradual drift towards failure of the congestive type. Pain was not the dominant feature with these patients. In this group could be included those whose cardiac reserve was still further hampered by auricular fibrillation, which might have originated in the attack of occlusion or have appeared later and become permanent. The outlook for the patients in this group was bad from the start. Their future was measured by months. The second group consisted of those who made a satisfactory recovery, and were able to lead reasonably useful lives, though rarely entirely free from some form of cardiac distress. They learned, however, to live within their limitations, and sometimes showed surprising longevity. They eventually succumbed to some kind of cardiac difficulty: of course, they were liable to die from intercurrent disease, but it was remarkable how relatively few died from other than a cardiac cause. The life of the members of this group might be measured by years instead of months. If the first critical stage could be weathered, their expectation was two to five or more years. A classic example was John Hunter, who had his first attack of coronary thrombosis twenty years before his death, when he was 45 years of age; three years later he had a second attack, and during the last few years of his life was liable to recurrent attacks of effort angina; yet his life continued at high pressure throughout. Among his own patients the speaker had had one who died last year at 70, fourteen years after his first attack; he was

liable to slight angina of effort. On careful scrutiny two facts stood out: (1) the frequency with which life was ended suddenly, presumably by a terminal thrombosis, and (2) the significance of a progressive tendency to dyspnoea and congestive failure. The age of onset might modify the prognosis. The younger were more apt to recover, and, having recovered, their expectation of life was a little longer. He could not satisfy himself that any reliable inference was to be drawn from blood-pressure findings after the attack was over. If anything, persons with lower blood pressure fared worse. Electrocardiograms were of far more value in the diagnosis of coronary occlusion than in its prognosis. In his own cases glycosuria of a mild type did not appear to add to the difficulty or diminish the expectation of life.

Dr. T. F. Cotton said that the occlusion syndrome was very easy to recognize. When the patient was seen during an acute illness the clinical features were characteristic. It was said that half the patients died rapidly during the acute illness. If that statement were accepted there must be included in the group patients who died from a recurrence of thrombosis. To forecast the course of recovery from the acute illness was difficult. A good deal of useful information could be obtained by observing and recording the notes on those patients who presented themselves with a history of angina before it was known that the angina was a sequel of coronary thrombosis. Of the last 200 anginal cases of which he had notes, seventy-three gave a history of past occlusion or had occlusion at the time he examined them. Of this number, thirty-three had angina after the occlusion. These anginal cases after occlusion seemed to suffer an increasing disability from angina of effort, or spasmodic angina, or recurring thrombosis. He had not seen one case of good functional recovery in this anginal group, and of the total number he knew that twenty patients were dead. Of the other forty cases of occlusion, but not angina, sixteen patients were noted as having made a recovery. Of the patients who recovered from the acute illness, therefore, a large number would have angina and die as a result; but patients who had coronary thrombosis and did not get angina might be expected to make a good functional recovery. Prognosis was distinctly more grave in the anginal group after occlusion.

Dr. B. T. Parsons-Smith remarked that the title of the discussion implied recovery from a catastrophe which until moderately recent times was regarded as invariably fatal. As a result of clinical observation on the part of many workers, a reasonably clear-cut conception of coronary thrombosis was nowadays recognized, and although the differential diagnosis of the condition was at times a matter of extreme difficulty one could not fail to be struck by the universally accepted prevalence of the malady, even allowing for the fact that errors might arise. Particular attention should be paid to subjective symptomatology, which might vary from a trifling degree of effort syndrome to serious manifestations of circulatory embarrassment, giddiness, breathlessness, and physical fatigue. In a large number of cases retrosternal pain would be complained of as a prominent symptom; its later recurrence must always be viewed with alarm. A comprehensive study of physical signs was essential to correct understanding of the course of the disease. Unfortunately, there was no reliable method of estimating the functional capacity of the heart in anything approaching a concrete form. For these reasons every case should be investigated on its individual merits, obvious discrepancies being noted and their significance assessed. Well-known signs of circulatory incompetence might proclaim their presence in unmistakable fashion. He had notes of several cases in which a relative asystole, observed by *x*-ray examination, proved to be a valuable sign of developing atheroma. Another sign was cardiac arrhythmia, to which special attention must be devoted. Some 50 or 60 per cent. of all cases of coronary thrombosis were immediately fatal; a relatively small number of patients recovered completely, and the remainder, roughly 40 per cent., might be expected to make a partial recovery. Their prognosis might be determined to some extent by careful investigation of the circulatory efficiency and its reserve capacity, always remembering that complications might develop in a disease the pathological basis of which was coronary atheroma associated wtih myocardial dystrophy.

Sir Maurice Cassidy said that there was one factor which he thought was important in producing a coronary thrombosis or thrombosis elsewhere than in the coronary circulation—namely, infection. There could be no doubt that many thromboses were infective, and probably the fever and leucocytosis which were seen so often in coronary thrombosis were part of the evidence of its infective nature. This was a factor that could be modified by suitable treatment, sometimes with very satisfactory results. He agreed that the electrocardiogram was very disappointing so far as prognosis was concerned. Serial electrocardiograms, with the noting of progressive changes in the myocardium, might afford valuable information, but he did not think that a serious prognosis ought to be based entirely on electrocardiographic changes.

Dr. Evan Bedford said that post mortem it was frequently found that the heart was blocked by a recent thrombosis, with nothing to be seen in the myocardium at all. It was these cases which were so often the subject of coroners' inquests; they formed a large percentage of all cases of coronary occlusion. The next most common thing found post mortem was hearts with healed fibrous infarcts, and the rarest thing to find at necropsy was infarcts of less than two months' duration. The type of case which accounted for the heaviest mortality was one which was rarely seen clinically. The question was, on seeing clinically a case of coronary thrombosis, what to say to the anxious relatives. The truth was that during the acute stage no one could give a prognosis, though the chances were three to one in favour of recovery from the attack. People who died suddenly after an attack of coronary thrombosis often died within the first twenty-one days, and when the patient had survived that period his chances might be said to be definitely better. It was not always the patient who lived longest who had the best health; sometimes people lived for several years in a most precarious condition. Persistently low blood pressure indicated that the myocardium as a whole was insufficient—that is to say, probably the infarct was very large, and therefore the outlook was bad.

Dr. T. S. Keith said that out of the last 200 coroners' post-mortems in which he had been interested, 111 revealed cardiac conditions, and of this number fifty-one cases showed definite diseases of the coronary artery. Twenty of these had generalized atheroma, and the remaining thirty-one had either an infarct or a clot. The most interesting point was the previous history of these coronary cases. In twenty of them there was no history whatever—the man was found dead and there was no story of previous illness; in nine of the remaining cases the deceased person had complained of indigestion, and had had treatment of some sort; six had had shortness of breath for a matter of months before death. Only two had any story of heart disease which had been diagnosed as such. Sixteen of them had fibrous infarcts, but in spite of that no cardiac history beforehand. Professor Plesch said that so long as all angina and coronary troubles were regarded as the same not much progress could be expected in either prognosis or diagnosis. He pleaded for a more discriminating study of the arteries. It was most desirable to build up a better understanding and a more widely recognized pathology of angina pectoris. Dr. Philip Ellman asked a number of questions. What was the relative prognosis in coronary thrombosis when there was clinically a comparatively healthy heart and when clinically there was a diseased heart? What was the relative prognosis with and without cardiac aneurysm? What was the significance of the persistent Q wave in these cases?

Professor Hay, in reply, said that to make a statement as to the prognostic significance of aneurysm would require a very much larger number of recorded cases than were available at present. The only significance of a persistent

Q wave was that it might help in diagnosing the previous existence of coronary thrombosis; it had no prognostic value. As for the prognosis when coronary thrombosis occurred in a healthy heart, he could only say that it was most unlikely to occur in a healthy heart, unless due to embolism. On the general question, as to the attitude to be adopted towards inquiring relatives, he thought that during the acute attack one could only talk of possibilities; after the acute attack, probabilities might be discussed. He hoped there would be another discussion in the Section in five years' time, when this whole subject, which was now perhaps a little premature, might be approached with greater confidence.

THE ANAEMIAS AND THEIR TREATMENT

At the Medical Society of London on October 22nd, with Dr. HOPE GOSSE in the chair, a discussion was held on "The Anaemias and their Treatment."

Dr. LESLIE WITTS, in an opening paper, traced the work done since 1926, in which year several noteworthy contributions were made, including that of Minot and Murphy on the treatment of pernicious anaemia by special diet, establishing the curative properties of liver. The merit of these authors in discovering the liver treatment had rather overshadowed their work on the reticulocytes, which had made possible a useful means of assessment of the value of therapy in various types of anaemia. Of anaemias due to defects of diet he gave two examples: the nutritional anaemia of infancy and tropical nutritional anaemia. The most important anaemias due to condition deficiencies, apart from pernicious anaemia, were sprue and idiopathic steatorrhoea. Since 1926 the nutritional aspects of anaemia had preoccupied the attention of clinicians and research workers, but the first-fruits in this field were quickly gathered, and attention was now directed to the way in which the ripening of the blood cells might be inhibited by infection and other agencies. The effects of infection on blood formation were complex; for example, it had a definitely inhibitory effect upon the utilization of iron. The inhibition of the ripening of the red cells by infection was well seen in syphilitics artificially inoculated with malaria, also in those suffering from natural malaria. Among unusual anaemias was a striking one produced by the ingestion of radium salts; this had been seen in girls engaged in painting luminous watches and accustomed to point the brushes with their lips. After giving other examples, Dr. Witts said that it was evident that in addition to anaemias due to increased destruction of blood, as from haemolysis and haemorrhage, and those due to chemical and bacterial poisons, there was a third and most important group, due to disturbances in the growth of the red cells, and in which the marrow, although perhaps anatomically extensive, was functionally ineffective, delivering few cells into the circulation. The cause was most often an insufficient supply of materials for blood formation, either through faulty diet or alimentary disease, but it might be an inhibition of the utilization of the raw materials by infection, toxic substances, or malignant disease. Drugs which contained the benzene ring were potent agents in producing agranulocytosis, and this condition might be expected to be more frequent with the wider use of these forms of medication. The same general principles as applied in diseases of the red cells applied also in leucopenia. Dr. Witts concluded by saying that there were few fields in which the relation between nutrient factors and orderly tissue development could be seen so clearly as in the haemopoietic system.

Dr. F. J. POYNTON, who mentioned incidentally that Galen used liver for the treatment of anaemia, asked a question concerning remissions. Some years ago he saw a young girl with secondary anaemia who did well on ordinary treatment, but came back to hospital nine months later with a profound anaemia of the pernicious type. Her red cells diminished to between 500,000 and 750,000. At that time liver treatment had just been established, but she was too ill to take liver, and appeared moribund. Then, without liver treatment or drugs, she showed some improvement, was able to take liver, recovered, and was well for several years, dying eventually of pulmonary tuberculosis. It was difficult to understand a condition which presented such a picture.

Mr. ZACHARY COPE said that anaemia troubled the surgeon as well as the physician. He recalled the case of a boy who had pelvic peritonitis resulting from appendicitis, and it was necessary to perform enterostomy. This served for a time, and then the inflammation spread up the gut, and it was necessary to do an enterostomy higher up. The patient was extremely toxic and collapsed, but he got over it, and two years later developed anaemia of the pernicious type. Was it possible that the toxaemia might in some way have affected the liver or bone marrow, leading to pernicious anaemia? He responded to liver treatment for about a year, but ultimately died two years after the onset.

Mr. EARDLEY HOLLAND said that anaemia also interested the obstetrician and gynaecologist. The simple anaemia of pregnancy seemed a very common thing, and he wondered whether it might not fall into the category of nutritional anaemias. Not all the simple anaemias of pregnancy, however, were nutritional, for sometimes they were found in women who lived extremely well. It was a common fallacy that meat was not good for the pregnant woman, and some anaemias might be traced to abstinence in this respect. At about the age of the climacteric irregular and profuse menstruation often occurred, and it was frequently supposed that the anaemia was secondary, but that was not necessarily so; some of these patients had a primary anaemia. Dr. F. PARKES WEBER asked as to the frequency of aplastic anaemia. He had once seen a case of acute aplastic anaemia in which there was no opportunity to do transfusion. The patient died, and the bone marrow, examined post mortem, was found to have practically no red blood-forming tissue left. This type of anaemia seemed to be exceedingly rare. Many cases supposed to be of aplastic anaemia were of an atypical disease allied to leukaemia.

Dr. G. W. GOODHART said that he had been "horrified" by the advice given by the Ministry of Health that small infants who were anaemic should be given doses of iron with their food. This seemed to him unbiological. The proper thing was to give iron through the mother, not some iron salt to the infant by mouth. He also mentioned that the large majority of women who had anaemias after abortion did not need transfusion; they did perfectly well on ordinary treatment with iron. Mr. V. B. GREEN-ARMYTAGE referred to megalocytic anaemia found among young women returning to this country from the Tropics. Liver was practically useless. The only treatment he knew of in such cases was marmite. If in the case of these pregnant women a blood transfusion was done, and more than 100 to 200 c.cm. of blood was given, they practically always had an abortion or premature labour.

Dr. P. H. MANSON-BAHR discussed some tropical anaemias, including the anaemia associated with ankylostomiasis. It was said that worms of the *Ankylostoma* genus were the most potent source of anaemia in the Tropics, but there were natives in the Pacific Islands heavily infected with ankylostomiasis who showed no signs of anaemia. The anaemia did not appear if the people were well fed and well housed. With regard to the history of liver therapy, he mentioned that Sir Patrick Manson, who discovered sprue in 1880, was in the habit of giving liver in sprue anaemia, and said that he got the idea from the Chinese, who attributed it to Confucius. Dr. W. BURTON WOOD described a patient who was quite symptomless, but whose white count remained obstinately low notwithstanding all kinds of treatment. Was this likely to be a case of agranulocytosis?

Dr. WITTS, in reply, said that the remissions which occurred in the pernicious and other forms of anaemia might be attributed to changes in gastro-intestinal function. In many nutritional and metabolic disorders, such as rickets and scurvy, similar remissions were noted. Any gross disease of the small intestine might easily lead to severe anaemia, and to remove more than six feet of the small intestine was inviting trouble in the future. The

idea that meat should be cut down in the diet of the pregnant woman was a fallacy which ought to be combated strongly. There would be far less anaemia and chronic ill-health in pregnancy if the mother was better fed. It had to be borne in mind that she had to give iron to the foetus which would serve the infant until weaning, for iron was not given to any great extent in the milk. He did not know why Dr. Goodhart should be horrified at the idea of giving iron to infants. He was not so certain that the feeding of the mothers would preserve the children from anaemia. The majority of children took iron quite well. He agreed that aplastic anaemia was a very unusual disease ; at Guy's two or three cases were seen in a year. Transfusion was much too readily resorted to nowadays ; it was a more dangerous operation than was generally supposed. With regard to the treatment of patients with chronic leucopenia, he usually put them on a diet with plenty of vitamins and plenty of such foods as sweetbread, liver, and kidneys, and was extremely careful to inquire into their history and the possibility of their having taken any toxic drugs. Beyond advising general hygienic measures and care to avoid as far as possible intercurrent infection, there was not a great deal to be done.

MEDICAL SERVICES AT HOME AND ABROAD

At a meeting of the Royal Society of Tropical Medicine and Hygiene at Manson House on October 18th, with the president, Sir LEONARD ROGERS, in the chair, Professor W. W. JAMESON read a paper on " The Medical Services at Home and Abroad," in which he recounted his impressions gained from a tour of India, Ceylon, and Malaya.

As a background Professor Jameson gave in outline the history of the public medical service of Great Britain from its beginnings just one hundred years ago, when the reformed Poor Law gave England its first general medical service, to the present day, with its public health service founded on sound sanitation, and aiming at the improvement of conditions of living throughout the country and the raising of the general level of health of the community by every available means. In India and in most of the Colonies official medical services owed their origin either to some form of military medical organization or to the need for medical care for European residents. Only in comparatively recent years had attempts been made to extend the benefits of public medical services to native populations. The early bias towards curative medicine was reflected in the costly hospital system established in many parts of the Empire, making undue demands on the money available for medical services, but having little effect on disease prevention or on the raising of the general standard of hygiene in the Tropics. The importance of establishing medical schools in suitable centres had been universally admitted. From them would come the medical officers who would one day form a large proportion of the medical staffs of the Colonies. Such schools gained from close association with Government institutions, but should be given as large a say as possible in the management of their own affairs, and not be regarded merely as a division of the Government medical department because they were paid for out of local revenues. It was now realized that maternity and child welfare work was best carried on as part of a general public health programme. Malaria and the diarrhoeal diseases as the chief causes of infant deaths must be got rid of if the high infant mortality rates were to be reduced. Improved sanitation was the real remedy. Better midwifery required the provision of trained midwives in selected areas, their registration and supervision. This was being achieved in parts of Malaya. In India the problem was unbelievably difficult in rural areas. The tendency was to diffuse effort over too wide an area. Maternity and child welfare work must be concentrated to be successful ; to give a certain amount of training to a native midwife and then send her out to practise without supervision was of little or no value. Midwives and health visitors must be public health " missionaries " first and foremost.

The value of active preventive measures against leprosy was now recognized ; mere segregation of infective cases was no longer considered sufficient. Ceylon's scheme of a leprosy survey, involving careful records of cases, examination of family contacts, and supervision of non-infective cases by the public health staff, offered great hopes of success. Tuberculosis, now as serious a killing disease in parts of the Tropics as in Europe, called for more accurate information. Work on the lines of that carried out by Scott in Hong-Kong, by the Rockefeller Foundation in Jamaica, and by Wilcocks in East Africa was needed as a preliminary to any special action in the East. All other tropical diseases dwindled in comparison with malaria. The amount of man-made malaria due, for example, to uncontrolled jungle clearance or to engineering work carried out without consultation with the medical department was astounding. It was unfortunate that information made available by the Malaria Survey of India had not been put to more practical use by the public health departments in India itself. The impression gained in India was that too much attention was paid to arrangements, never adequate, for the wholesale distribution of quinine, while measures directed against anopheles took a second place. In striking contrast was the attitude of managers of many commercial undertakings in India, Assam, and Malaya to antimalarial work. Some of the railways, some of the gardens in Assam, and some of the rubber estates in Malaya, where there was close co-operation with the Government medical department, were an object lesson in the much-vaunted co-operation between science and industry. As regards general sanitation, upon which the control of so much tropical disease depended, there seemed a tendency in some quarters to prefer methods of control based on laboratory findings to sound sanitary measures. Anti-typhoid, anticholera, and antiplague inoculations had a place in preventive work, but good sanitation was a permanent safeguard. The need of India particularly, from this point of view, was good sanitary engineering, and plenty of it.

The organization of medical services at home and in India presented striking contrasts. In England the bulk of public medical work was directed by whole-time medical officers of health, appointed with the approval, and not dismissible without the consent, of the Ministry of Health, which in its turn maintained a technical staff whose services were available to local authorities in cases of difficulty. India had no comparable organization. Unfortunately there was no provision in its constitution for a strong central department with health as its concern. The Public Health Commissioner with the Government of India works practically single-handed at New Delhi with very limited official right of entry to any of the Provinces. The Indian Medical Service was based essentially on the military needs of the country, and lacked the necessary flexibility for civil administration. It had been allowed to develop rather on clinical lines, and the old-established custom of allowing private practice still held. Most of the large medical schools in India had special institutes for the training of post-graduate students in public health, but at least two of those visited were conducting no such courses of instruction owing to lack of demand for health officers. It was to be hoped that the All-India Institute of Hygiene, recently opened in Calcutta, would stimulate India to fresh efforts by training men and women for public health appointments in that country.

Progress in the medical services in the Colonies had been most marked since the war. The regulations of the recently unified Colonial Medical Service envisaged a service of whole-time officials whose primary duty was to the State, and no entrant to the service would be entitled to a right to private practice. In Malaya and Ceylon a real attempt was being made to hold a proper balance between the claims of curative medicine and of sanitation. Most Colonies now trained sanitary inspectors locally, and to assist in this and to relieve medical officers of a good

deal of work experienced European inspectors were needed. As an encouragement to young medical men to undertake service abroad it needed to be made known that conditions were good, that abundant opportunities for original work offered themselves, and that the standard of professional work was often as high as at home. The quality of the laboratory work done was admirable, but the wisdom of keeping a man too long on research work in the Tropics, away from contact with fellow research workers in his own and similar fields, was questionable. Here was a matter for the Medical Research Council to consider now that their sphere of operation had been made Empire-wide. Perhaps it was too much to envisage for the future a Government medical service which would include within its scope service over-seas as well as service at home, but the result would be well worth any expenditure of effort in overcoming the administrative difficulties.

Discussion

Sir John Megaw said that England's sanitary victories were achieved because of public co-operation, and because the economic standards of life were improving as the work of disease prevention was proceeding The example of Japan, where magnificent public health efforts had not achieved success, was more applicable to India, and showed that the new wine of scientific sanitation could not be poured into the old bottles of antiquated custom. Modern sanitation was obviously a mockery to people who were ill nourished, and, as long as the provision of the necessities of life did not keep pace with the reproduction of children, must remain so. The public health officers belonging to the I.M.S. had not organized a co-ordinated policy of public health for India because they had been deprived by the administrative system of India of even the limited influence they once had in the affairs of the central Government. More than twenty years ago the late Sir Pardey Lukis had put forward an admirable scheme for a public health organization for the whole of India which had good prospects of being taken up by Government, but the war came and stopped everything.

Sir Malcolm Watson said that when criticizing the I.M.S. one must remember that the Indian Government itself had never put the public health of the people first. The I.M.S. perhaps had its greatest opportunity thirty or forty years ago, but at that time the civil service and the military service in India were more concerned with the first duty of a Government, which is to preserve peace. In Malaya peace was never a problem, so that health had been the concern of the Government from the beginning, and it had been prepared to hand out money in a most generous way for sound health purposes.

Surgeon General P. J. Kelly said that he had found in British Guiana that it was easier to educate and to instil public health measures in races such as the descendants of African slaves, without long years of culture, than in races such as the Indians, with a culture of their own. Dr. A. R. Paterson thought that to form and influence the policy of Governments it was necessary to get across to them somehow a knowledge of the actual condition of the peoples in the Tropics—how truly appalling it was—and that nothing in the way of maternity services, health centres, etc., was going radically to alter that condition. Group Captain H. E. Whittingham instanced the wide-awakeness of the Colonial Medical Service in sending a certain number of Colonial medical officers to the Royal Air Force for special training in aviation medicine.

Sir Rickard Christophers pointed out that the money available for public health in India was too small for anything at all to be done in India, of the type of public health work done in England, without the most careful thought and knowledge and continued policy. He agreed that there was no prospect of any permanent benefit in India, except through what Professor Jameson had spoken of as somebody doing the driving. Sir Leonard Rogers said that the ordinary expenditure in India for the whole of the work—teaching, hospitals, schools, and sanitation—had to come from an income of two or three shillings per head of population.

DENTAL PROBLEMS OF MEDICAL INTEREST

At a meeting of the Liverpool Medical Institution on October 18th, with the president, Dr. J. Murray Bligh, in the chair, Mr. Robert Kennon read a paper on "A Few Dental Problems of Interest to the Medical Profession."

He said that whereas caries was often considered to be the result of starch and sugary food, the modern child was indulging in far more sweets than formerly in order to combat acidosis. Serious infection from the teeth was rare in childhood, apart from concurrent infectious fevers, when the mouth should be watched carefully for development of caries. In adults acute pulpitis might lead to extensive osteomyelitis. More frequently the apical abscess had led to decalcification of bone over a long period of time, so that cortical sequestra were more common. The fact that the molar roots were beneath the mylohyoid ridge meant the early approach of abscesses to the neck, and these should be opened before extensive cellulitis had developed. In dental cysts the whole sac should be removed. In trismus gags were necessary, and relief might be obtained by a spring over the head pressing lightly upon the infected joint. Ill-fitting dentures were a source of leucoplakia and carcinoma. The life of a denture should not be more than five years.

Mr. J. A. Woods agreed with Mr. Kennon as to the importance of retaining deciduous teeth when possible. The early loss might in some cases seem an immediate gain, but it frequently led to serious irregularities later on. He stressed the great importance of normal breathing, and pointed out some of the evils seen by the dental surgeon in "mouth-breathers." He had found that an abscess caused by the upper lateral incisors frequently caused oedema on the palate (and from a development point of view that was easily explained); on the other hand, an abscess from the upper central incisors more frequently caused oedema in the sulcus of the lip. He quite agreed that where a large number of extractions was necessary it was very important that it should be done in several stages. The more septic the mouth the more important this became.

Mr. J. Cosbie Ross pointed out the occurrence of large sequestra in the region of the mental foramen of the mandible, following an alveolar abscess of the posterior molar. Normal bone was present in these cases between the original alveolar abscess and the residual sequestrum, and it was possible that thrombosis of the inferior dental artery, and the subsequent diminution of blood supply to the bone, was the cause of the necrosis. Mr. Ross also emphasized the association between the wearing of ill-fitting dentures and carcinoma of the mouth, and the appreciable percentage of cases where a definite causative relationship could be established. He quoted one case where a man had worn a very large denture for eighteen years, during which time an indurated crack had developed at the corner of the mouth on both sides owing to excessive stretching of the mouth required to permit the denture to be removed. When this case was seen by the speaker recently an epithelioma (confirmed by microscopical section) had developed at the site of the crack on both sides.

Mr. A. E. Burroughs drew attention to the connexion between dental caries and inflammation of the ciliary body, cyclitis. This was an extremely obstinate, deep-seated inflammation, due to sepsis, and one of the first foci to be thought of was in the teeth. If dental caries was the cause the case should be referred to a dental surgeon for investigation. In these cases dental treatment would generally cause the cyclitis to clear up quickly and an eye be saved which would otherwise surely be lost. Dr. Rawdon Smith stressed the importance of team work, and agreed that adrenaline more often caused trouble than cocaine or one of its derivatives. He further thought that reactionary haemorrhage was more common after local than after general anaesthetics. He was glad to know that dentists were becoming more conservative by not agreeing to wholesale extractions in cases of chronic rheumatism.

Dr. G. Graham Macphee said that he remembered when glucose, and particularly glucose in cheap sweets, was considered to be the chief factor in dental caries, yet nowadays glucose appeared to be regarded as an essential constituent of the diet of the growing child. Perhaps both views might be reconciled if the necessary glucose and sweets were eaten only at meal-times and the teeth cleaned immediately afterwards. Dr. Macphee said he was glad that Mr. Kennon had stressed the importance of alveolar abscess. There certainly were cases where removal of the offending tooth was not indicated, but in most cases if the tooth concerned was unsavable it should be extracted at once, without "waiting for the swelling to go down." He instanced a case with a history of discharging external sinus of eighteen months' duration which was cured by extracting two septic roots; yet although five doctors had treated the case nobody had looked inside the mouth. Dr. Macphee then showed slides of radiographs which proved deposition of new bone in the apical region of two upper lateral incisors after appropriate root-canal treatment. He could not agree that post-extraction haemorrhage did not occur after a general anaesthetic had been used, having seen two cases in hospital only that afternoon. In the treatment of true dental cysts he had obtained good results by simply removing one wall of the cyst and bringing the buccal mucous membrane into apposition with the epithelial lining of the cyst. Dr. Macphee felt sure that all dental surgeons would agree with Mr. Kennon that dentures should be renewed more frequently. Patients did not realize the harm that might be done by dentures which no longer fitted their shrunken gums. A particularly pernicious practice was to continue wearing temporary dentures long after they had ceased to fit. Here again was an opportunity for more co-operation between physician and dental surgeon.

Professor Henry Cohen also supported the plea for closer co-operation between general medical and dental practice. Many diseases had oral presenting symptoms. Six cases of adult scurvy had applied to the Dental Hospital for treatment in the past three to four years. Emphasis should be laid on the part played by the salivary glands as excretory organs for the products of intestinal putrefaction, especially of indoxyl compounds, which were responsible for the stains often seen in the molar region of an upper denture in the constipated female. A simple support in facial paralysis could be made from a pipe-cleaner and inner-valve tubing, bent so as to hook round the affected angle of the mouth and ear on the same side.

Manganese Poisoning

Dr. Donald Owen, in a short paper on "Manganese Poisoning," first outlined the various commercial uses of manganese, and gave a brief description of the manufacture of the metal and its separation from other ore. The history of chronic manganese poisoning dated back to 1837, when Couper described five cases. Only fifteen cases had been recorded up to 1913, and these were found in France, Germany, and the United States. Esdall in 1919 reported further cases, but it was not until 1922 that the first publication on this subject appeared in our own literature, by J. R. Charles of Bristol. The pathology was practically unknown, and animal experimentation had failed to assist, with few exceptions. Findlay was able to produce cirrhosis of the liver in rabbits, and Mella changes in the corpus striatum and globus pallidus of monkeys, following administration of manganese chloride. In June and July, 1934, the speaker saw four cases of chronic manganese poisoning at the Bootle General Hospital, occurring in men working in the same manganese works. The appearance of symptoms of intoxication to the metal was in one case after only eight months' work, and in the other three after two and a half, six and a half, and eight years respectively. The clinical picture in each case was indistinguishable from that of chronic post-encephalitic Parkinsonism, but the extent of involvement of the extrapyramidal system varied in each. Signs and symptoms of hepatic cirrhosis were not found.

Correspondence

Treatment of Haemoptysis

Sir,—I was pleased to see Drs. Morlock and Pinchin's condemnation of the use of morphine in the treatment of haemoptysis (*British Medical Journal*, October 27th). At final examinations in medicine, candidates, when asked about the treatment of haemoptysis, invariably reply that they would inject morphine. If further pressed they may mention calcium lactate, and then seem to be at an end of their resources. In my experience the most effective immediate remedy for haemoptysis is the subcutaneous injection of 1 c.cm. of pituitrin. My house-physicians use it as a routine method in cases brought to hospital, and rarely have any trouble from recurrence. It is surprising that its use is not more widely known. It is not mentioned in textbooks. In the *Extra Pharmacopoeia*, under the heading of "Pituitary," there is a reference to an article of mine in the *Clinical Journal* (January 24th, 1923). At first sight a drug which raises systemic arterial pressure would seem contraindicated, but we know little about the action of drugs on the pulmonary circulation. Pituitrin is said to lower the pressure in the pulmonary vessels. In the treatment of haemoptysis it has the great advantage of being a drug usually carried in the practitioner's bag, and therefore available in an emergency.—I am, etc.,

Birmingham, Oct. 30th. W. H. Wynn.

Congenital Pyloric Stenosis

Sir,—On reading the excellent article by Dr. H. L. Wallace and Mr. L. B. Wevill, analysing 145 cases of pyloric stenosis (*Journal*, June 30th, p. 1153), we were surprised at the high mortality rate recorded therein, and therefore decided to analyse a series of our own cases to see how the various features of the disease compared with those recorded by Wallace and Wevill. We have collected and tabulated a series of 120 cases, operated on within the last ten years; fifty-six were operated on by one of us (P. L. H.) and sixty-four by the other (L. G. T.). Most of the cases were operated on at the Royal Alexandra Hospital for Children, Sydney, N.S.W.

Out of the total number of cases there were ninety-five males and twenty-two females, the sex not being stated in three. The average age at time of operation, which generally coincided with the age at which the diagnosis was made, was 5½ weeks. The average weight at time of operation was 7 lb. The average age at which the projectile vomiting appeared was 3 weeks, the range varying from birth to the age of 11 weeks. Visible gastric peristalsis was present in all; as this is such an unequivocal diagnostic feature it was not considered necessary to determine the presence of a tumour. No case has been included in the series in which the diagnosis was not confirmed at operation. There were five deaths in the 120 cases, a mortality of about 4 per cent.

We consider that gastric lavage should be carried out in every case immediately before operation, otherwise infants will be lost either at or immediately after operation, owing to asphyxia from regurgitated stomach contents. Most of our patients were given saline solution per rectum soon after operation, and this was repeated at four-hourly intervals as long as seemed necessary. In most instances the infants were placed in a specially warmed shock ward immediately after operation, and were given breast-milk from a spoon or pipette as soon as they could swallow. The simple Rammstedt method without modifications was the operation in every instance. The operations were all done under general ether anaesthesia, and this was usually given by a resident medical officer, who had had

no special experience in administration of anaesthetics beyond the experience gained by a short period of residence in hospital. The majority of the cases were operated upon as soon as possible after the diagnosis was made, and very rarely was any special preliminary treatment given, excepting gastric lavage, as mentioned before.—We are, etc.,

P. L. Hipsley, M.D., F.R.A.C.S.Sydney,
Honorary Surgeon, Royal Alexandra Hospital for Children, Sydney.
L. G. Tait, M.B., Ch.M.,
Honorary Assistant Surgeon, Royal Alexandra Hospital for Children.
Sydney, Australia, Sept. 29th.

*** The writers of this letter have submitted tabular records of the cases operated on by them.—Ed., *B.M.J.*

Ether Convulsions

Sir,—The spasmodic correspondence about ether convulsions goes on without apparently providing any real conclusions, and I take this as my excuse for writing to you. Though not an anaesthetist, I have had some experience of giving ether, first of all in New Zealand; and then from time to time I have had to give it over here.

In some 1,000 cases in which I gave open ether in New Zealand, either by the drop method or with Shipway's apparatus, I never saw anything suggesting convulsions; and I never, while I was in practice there (some four years), heard of anyone else doing so. At first in England I also never saw any suggestion of them so long as I used the procedures I was accustomed to—namely, drop-bottle alone or a Shipway worked by a bellows. Lately, however, I had begun to use oxygen with a Shipway, and on two occasions I saw definite facial twitchings. Fortunately, neither case went further. The coincidence of the appearance of the twitchings with my first use of oxygen instead of air struck me forcibly; so on the second occasion I used CO_2 as well. Again it may have been only coincidence, but with pure oxygen twitchings appeared; on changing to CO_2 they went, but returned once more with the oxygen. It really seemed as if they were heralded each time by the appearance of a bright pink colour.

Naturally one can place very little confidence in observations on only one case; but it has been noticeable in the previous correspondence that oxygen is always used. Some writers have queried its responsibility, only to rule it out as being of good quality, etc. May not the cause lie in the three factors—susceptibility, ether vapour, oxygen above the content of atmospheric air?—I am, etc.,

London, S.W.13, Oct. 24th. L. A. Riddell, F.R.C.S.

Motor Backache and Neuralgia

Sir,—The letter on this subject from "G. H. A." is most interesting as it describes a condition that has been very common in recent years, and with the increasing popularity of motoring is likely to be a frequent cause of disability.

I agree with "G. H. A." that the bucket-seat, so popular in all cars to-day, is the cause of the trouble, and he would add greatly to the value of his letter if he can suggest a type of seat that will retain the advantages of the adjustable bucket-seat and at the same time allow the muscles in the lumbo-sacral region to relax during a long drive. My own observations suggest that such a seat must be deep enough to support the thigh, and by means of "wings" that grip the pelvis prevent tilting and rotation in the lower lumbar vertebrae when cornering.

It may be that a seat with these features is already on the market, and "G. H. A." would be doing a great service to the motoring public and the motor designers if he will give his experience.—I am, etc.,

Shrewsbury, Oct. 29th. B. A. Astley-Weston.

Sir,—The letter of "G. H. A." regarding motor backache in the *Journal* of October 27th (p. 791) prompts me to write this. During the last two years I have done 40,000 miles in a popular 9-h.p. saloon car, in both town and country work and long-distance journeys, the longest being 490 miles in fourteen hours, with stops only for petrol and oil. During that period I have never yet experienced any undue fatigue or backache. I attribute this to the type of seat I have. It is a bucket-seat, with a back practically upright. It has an air cushion not very tightly inflated, and with the front edge slightly higher than the rear edge. I sit square in the middle of the seat, leaning neither to one side nor to the other, with the lower part of the spine pressed against the back of the seat, and the result is that my whole spine is comfortably supported in its entirety.

The point I would stress is the importance of sitting erect and not slouching, as one sees so many drivers do nowadays. Some cars I have driven have given me backache within a few miles due to faulty seats.—I am, etc.,

Liverpool, Oct. 27th. T. W. G.

Residual Infection of the Jaws

Sir,—Is not the picture painted by Mr. A. M. Nodine in your issue of October 20th badly out of perspective? The occasional occurrence of residual bone infection and the advantages of so-called "surgical" removal of teeth in certain cases have long been recognized by the dental profession; but to suggest that "teeth that are removed by the ordinary pulling method" (as he contemptuously terms it) "in most cases only stir up the infection . . . while the infecting process continues undisturbed" is surely gross distortion of the facts of everyday experience.

The vast majority of infected teeth are removed by forceps, with a minimum of trauma, often under gas-and-oxygen anaesthesia, the "whiff" in the hands of a competent anaesthetist extending to whatever length of time the dentist may need for the careful and deliberate execution of his work, and usually the expected relief of symptoms is obtained.

To substitute for a comparatively simple operation, as a routine method, one much more extensive and severe, and often involving painful and prolonged convalescence, would hardly seem to be in the best interests of patients generally. A good case is marred by over-statement.—I am, etc.,

London, W.1, Oct. 29th. J. H. Badcock.

Sir,—Mr. A. M. Nodine's letter on residual infection of the jaws seems intended to give the impression that extraction carried out with the forceps is an unsurgical procedure, calculated to leave in the majority of cases an aftermath of residual infection. If this is his contention I feel that it should not pass unchallenged, but that the medical profession should know that this opinion, which is held by a relatively small body of American ultra-specialists, is not accepted by the majority of dental surgeons in this country, whether engaged exclusively in general practice or on the staff of teaching hospitals, and therefore having special facilities for, and experience in, that side of dentistry which borders on "oral surgery."

There would seem to be two main points in Mr. Nodine's letter. One is that no tooth should be removed in the direction of its long axis, but by prising it out

sideways after the removal of the entire outer bony wall of its socket, and thereafter trimming away the resulting sharp corners of bone and stitching the gum over the wound. The other point is that where a tooth is removed because it is infected, either through pyorrhoea or because it is apically septic, the zone of infection in the surrounding bone should be removed in its entirety at the same time.

With regard to the first point, surely the best method of removing a tooth is that which combines the greatest ease and simplicity with the minimum of trauma, both local and psychic, and the absence of undesirable sequelae. A considerable proportion of dental extractions can be performed in a few seconds with the forceps under local or general anaesthesia, with little force beyond that required to rupture the periodontal membrane, with no damage to, or loss of, surrounding bone, and with such complete absence of after-pain that the patient is only reminded of the extraction by the consciousness of the gap left. When difficulty is expected more elaborate methods may be used in order to avoid bruising of the bone and gum, and such methods may vary from the preliminary separation of divergent roots to the removal of less or more bone, even up to the full rigours of Mr. Nodine's operation ; though the last, I contend, is only rarely necessary.

That this more conservative method of dealing with the teeth is justified by the results is exemplified, in the case of impacted wisdom teeth, by the lessened after-pain and greater rapidity of healing which follow removal by deliberately splitting the tooth into pieces, which can be taken out without the extensive cutting of bone which would be necessary to permit its removal whole. Nor must the time factor be ignored. When general anaesthesia is used the advantage of rapidity is obvious ; where a local injection is preferred a more or less prolonged operation, under presumably aseptic conditions, is a considerable ordeal as compared with extraction by forceps, equal skill being assumed in each case. With regard to shaping a suitable bony base for dentures, it is true that the "surgical" method offers certain advantages, but the same end is attained by the simpler and quicker method of trimming away the sharp margins of the socket after extracting the tooth.

Mr. Nodine's second principle relates to the removal of infected bone. It would be of interest to know how Mr. Nodine determines the precise extent of infection in a given case, and whether he removes all this bone and a trifle more to be on the safe side, and whether in the case of infected bone near the antrum he has the courage of his convictions and removes it even at the expense of opening the antrum. I feel that in the last case he would do what most of us do in this and other cases—he would leave the infected bone there, and trust Nature to deal with it *secundum artem*. Does she not do so in the case of osteomyelitis of the long bones once drainage is established, and in the case of an incised boil? (Or should we excise boils completely, and save Nature any responsibility in the matter?)

My reference to the antrum is not frivolous. I have had the opportunity of examining microscopically a large number of sections of human maxillae showing the molar teeth *in situ*, and noted that a quite moderate degree of pyorrhoea led to round-celled infiltration of large tracts of bone, extending frequently to the near neighbourhood of the antral floor.

If Mr. Nodine could show that, in a high percentage of cases treated by simple extraction, infected areas of bone persist for a long time, to the detriment of the patient's health and comfort, I think he would have a strong case for removing bone where radiographs show it to be abnormal, though it must be remembered that up to the present we do not know with certainty how to interpret many of the abnormal *x*-ray appearances of alveolar bone, though work on these lines has been commenced in the Hale Research Laboratory of the Royal Dental Hospital. I submit that so far clinical evidence is all the other way ; the great majority of edentulous alveoli give rise to no reasons, local or otherwise, for suspecting trouble within, and experimental evidence is entirely lacking on either side.

It is true that areas of infection are found in edentulous jaws from time to time, and that conditions as serious as trigeminal neuralgia have been benefited by Warwick James, Bowdler Henry, and others by the removal or diathermy of such areas, but to use this fact as an argument in favour of replacing present methods by one so much more elaborate and so liable to abuse seems to me quite unjustifiable.—I am, etc.,

London, W.1, Oct. 29th. NORMAN J. AINSWORTH.

"German Measles": A Plea

SIR,—My attention has recently been drawn to the unsuitability of the term "German measles," used to describe rubella. I believe the word originates from "germane," meaning "closely allied to." But the diagnostic differences between measles and german measles are distinct enough to warrant the use of a better name for the latter.

The use of this term is misleading to the public in many ways. It confuses in their minds a comparatively mild infection with one which may be serious. It also leads to a false impression as to immunity. The parent vaguely knows that a child has had "measles of some sort or other, German or English, I don't know which" ; and therefore has a false sense of security and thinks him adequately protected against further infection with either disease. I have even heard of practitioners not troubling to differentiate between these different diseases, leaving the parent in ignorance.

Cannot the medical profession lead the way—educate the public—by themselves consistently using the word "rubella," or by fixing upon some other suitable name? Surely the usage of the term "German measles" by medical men and women is far from the accuracy which should be the basis of scientific nomenclature.—I am, etc.,

Bromfield, Oct. 22nd. G. M. L. SUMMERHAYES MACRAE.

*** Unfortunately, the official *Nomenclature of Diseases*, drawn up by a joint committee appointed by the Royal College of Physicians of London (H.M. Stationery Office, 1931), gives "German measles" first, with "rubella" and "röteln" in parentheses, as admissible synonyms. —ED. *B.M.J.*

Local Treatment of Coryza

SIR,—A recent recruit to the stage of medicine is the theory that a general infection is less dangerous to the organism as a whole in proportion to the extent of any local reaction it produces on an individual mucous membrane or tissue.

This *enfant prodigue* is commended to our attention by such distinguished sponsors as Lord Horder and others, and it must be said that there are strong grounds for admitting that there may be "something in it" in spite of its suspicious resemblance to our old but rather *démodé* friend the fixation abscess, or even to that old reprobate of Victorian days known as "laudable pus." The comparative safety of pneumonia with a good solid lobe and of puerperal infections with a determined parametritis are cases in point.

It would appear, however, that certain practical applications of this proposition have not received sufficient attention. For example, the common cold, that ever-present reproach. This normally attacks the nose, and admittedly makes the sufferer uncomfortable and perhaps ridiculous. It is nowadays considered *de rigueur* to attack the sufferer's nasal mucous membrane with oils, inhalations, sprays, pastes, and snuffs whereby the beneficial and harmless local reaction in the nose is greatly diminished, but a severe bronchitis or other manifestation takes its place, and may prove most obstinate, and even dangerous. As we are unable to cut it short by local means, ought we not rather to encourage and welcome a streaming cold in the nose as the best and most harmless means of overcoming the infection and producing an immunity at least for a season? If so, we must consider all local curative treatment as dangerous, and confine our efforts: (1) to promoting the general resistance, and (2) to protecting the lungs and bronchi by the means and remedies which in our experience are useful for these ends.

Similarly, it may be that the prevalence of " mastoids " in our schools might be less if, instead of doing the universal " T. and A.," we contented ourselves with removing the A. where they are causing obstruction and merely " hoovering " the T. Again, is a chlorine mixture worse than useless in typhoid? Certainly intestinal disinfectants are useless in acute dysentery.

Other similar examples of acute infections where local treatment is contraindicated or clinically useless will readily occur to mind—as erysipelas, diphtheria, meningitis—but it is towards acute coryza that I desire to direct attention.—I am, etc.,

East India United Service Club, London, Oct. 25th. W. C. SPACKMAN.

Alkali Reserve in Asthma

SIR,—With reference to Dr. James Adam's letter in the *Journal* of September 15th (p. 531), I may state that a condition of lowered alkali reserve (acidosis) with low blood sugar content in asthma was reported by B. C. Roy and myself in 1923 (*Calcutta Medical Journal*, March, 1923, p. 1). Since then many cases of asthma have been treated with sodium bicarbonate and glucose, often with very good results.—I am, etc.,

Biochemical Department, Carmichael Medical College, Calcutta, Oct. 9th. H. N. MUKHERJEE.

Concurrent Varicella and Herpes Zoster

SIR,—In connexion with the clinical memorandum on the relation between herpes zoster and varicella by Dr. Douglas Robertson, published in the *Journal* of October 20th (p. 721), a case presenting the combined appearance of the rashes of herpes zoster and varicella is sufficiently rare to warrant recording.

A mechanic, aged 31, was first seen on October 10th, 1934, complaining of shooting pains under his left arm and a rash on his chest, which first appeared on October 7th. Examination showed a typical herpes zoster, localized to the second and third thoracic segments of the left side and along the cutaneous distribution on the inner aspect of the left upper arm. The temperature was 98.4°. On October 13th the patient was again seen, when he complained of a further rash, which had first appeared on October 11th. Examination showed that in addition to the herpes zoster a further rash was present, consisting of papules, vesicles, and pustules, being thickest on the trunk, and also present on the face, scalp, proximal portions of the limbs, soft palate, and fauces. The forearms and distal parts of the legs were quite free from the rash. The temperature was 101.4°, and a diagnosis of varicella was made.

In this case there was no history of any previous exposure to herpes zoster or varicella, and if it may be presumed that the virus causing herpes zoster can infect another person and cause varicella, then it is interesting to note that this virus can presumably cause the two clinical conditions in the one person.—I am, etc.,

London, N.W.2, Oct. 19th. M. FISHMAN, M.B., B.S.

Whither General Practice?

SIR,—While we realize that in these days of hurry and bustle it is not possible to observe many of the courtesies previously believed in, surely it is still possible for a certain degree of professional etiquette to be maintained. May I cite one of my experiences as a general practitioner?

A panel patient was treated by me for pleurisy with effusion, and was warned as to the possible underlying cause. On *x*-ray and further examination during convalescence no definite evidence of tuberculosis was obtained. After a holiday he was very well, and his weight was increasing. He was allowed to return to light work and was to report weekly, pending a second *x*-ray investigation and examination by the tuberculosis officer. After an absence of fourteen days he came to my surgery with the following information. His firm had insisted on his return that he saw another medical man. I received no intimation of the examination from the firm or the doctor. The patient, however, was told by him that he was to see the tuberculosis officer at once, and have another *x*-ray examination. As it happened, it was during the week in which he failed to call that I intended sending him for these examinations. His absence was explained by the fact that he had been sent for a holiday by his firm at their examiner's request.

I think it is widely accepted that there is a growing tendency on the part of the general public to criticize the abilities of the general practitioner, particularly the panel doctor. Surely, therefore, this practice of examining another doctor's patients without his consent is much to be deplored? I may add that the above case is only one of several in my own experience, and from what I have been told by other practitioners it is a fairly common occurrence.—I am, etc.,

Cheshire, Oct. 23rd. E. M. DAVIES.

Medical Benevolence

SIR,—Dr. A. J. Hawes, in his letter to you of October 20th, gives me the opportunity, as Sir Thomas Barlow's " Assistant Tormentor," of thanking him: first for writing to you about medical charities, a form of propaganda in which we rejoice; and secondly, for being a direct subscriber to the Royal Medical Benevolent Fund (*a*) through our Charities Committee, and (*b*) via a banker's order so many years. How I wish every one of the 52,000 men on the Scottish and English *Registers* would do likewise: if these did his grievance would at once be abolished, and my wished-for increased subscription list would be attained.

So, Sir, you see now why Dr. Hawes has never been approached in person and asked to subscribe. We only go to the delinquents who do not attempt to do anything for their poorer brethren, and such splendid fellows as Dr. Hawes, who don't require reminders, we avoid " tormenting " as much as possible.

With regard to local secretaries, we are always asking for more help in this direction, so that the personal application which Dr. Hawes suggests can be effectively made, but I regret to say that we have only had two answers in reply to our request for local secretaries which

was sent out in the last annual report. Could he not help us in this direction?—I am, etc.,

LEWIS G. GLOVER,
Honorary Treasurer, R.M.B.F.

11, Chandos Street, Cavendish Square, W.1, Oct. 23rd.

SIR,—It is good to see that the subject of medical benevolence is attracting more attention in your columns. Perhaps it might more correctly have been headed "The Lack of Medical Benevolence," for surely the inadequacy of support given to the leading medical charities is a blot on the profession. There are now more than 56,000 names on the *Medical Register*, and the income of the Royal Medical Benevolent Fund last year from subscriptions was £11,856. Comment upon these figures is superfluous.

The medical profession to-day provides a good living for its members, but when the cost of buying a practice, life insurance, education, and the deep dip into the banking account every few years to buy a new car are taken into account the difficulties of accumulating capital to provide for old age and the widow and orphans are obvious. From the exacting nature of our work it is inevitable that the number of those who break down in health, or die early, must be considerable. The importance of the Royal Medical Benevolent Fund having adequate funds at its disposal, with which to assist cases of necessity, is surely a duty which the profession owes to itself.

I have been impressed by three lines in Dr. Hawes's letter; he says that "in eighteen years of qualified life I have never once been personally approached and asked to subscribe to the fund." That, I believe, is the secret of the apparent apathy in the profession to the needs of the Royal Medical Benevolent Fund and other medical charities. It is the personal appeal that is necessary. What can be done is illustrated by my own experience as Charities Secretary in this Division—one of the youngest and smallest in the Association.

By personal appeal, during the five years of its existence, I have raised a sum of nearly £100 for the Royal Medical Benevolent Fund. Every practising colleague contributes, and I have rarely to ask a second time for the now recognized yearly subscription. I might add that I am careful not to make my appeal synchronize with that of the income-tax collector.

What can be done in this Division can be done in others, but the personal appeal is essential. I feel certain that it is not apathy to the needs of the less fortunate members of our profession and their dependants but the distractions of a busy life that has been the real reason for the meagre support given to our own particular charities.

The British Medical Association itself is so busy flying flags, *re* hospital policy, public medical services, and other schemes for socializing the profession, that it has little time to devote to the needs of medical charities. It would, however, do a good service to the profession if it would urge a little more vigorously upon the Divisions the necessity of having an active charities secretary. To those who are willing to undertake the task of collecting subscriptions for the Royal Medical Benevolent Fund I can promise, from personal experience, the warmest appreciation and thanks from the committee of that Fund.—I am, etc.,

W. G. HARNETT,
Charities Secretary, Barnet Division, B.M.A.

Hadley, Oct. 23rd.

SIR,—The questions with which Dr. A. J. Hawes opens his letter on this subject may be answered comprehensively in a sentence. It is apparently *not* the desire of the majority of the profession to provide decently for its own poor. The excellent machinery of the Royal Medical Benevolent Fund is there for the purpose. In many areas there are already local secretaries appointed, who try to practise the suavity and persistence recommended by Dr Hawes. And with what result? A generous cheque from a minority, some expressed irritation and even downright opposition from a few, and a stony unresponsiveness from the majority.

All that Dr. Hawes desires could be achieved if every medical man with a modest income subscribed a guinea yearly to the Royal Medical Benevolent Fund, well-to-do and wealthy practitioners proportionately higher. The implied reproaches, the begging letters, and the unrelieved distress of our own poor would then all vanish together. Now then, non-subscribers! Why not sit down and write that cheque now?—I am, etc.,

HONORARY LOCAL SECRETARY, R.M.B.F.

Scotland, Oct. 23rd.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a congregation held on October 19th the degree of Master of Arts was conferred upon the new Professor of Anatomy, Henry Albert Harris, D.Sc., M.D.Lond.

UNIVERSITY OF LONDON

A meeting of the Senate was held on October 24th, with the Vice-Chancellor (Professor L. N. G. Filon) in the chair.

Dr. L. J. Witts was appointed to the chair of medicine, and Professor Geoffrey Hadfield to the chair of pathology, at St. Bartholomew's Hospital Medical College, both from January 1st, 1935.

The following appointments to readerships (indicated in parentheses) at the British Post-Graduate Medical School, from November 1st, were also made: Dr. R. S. Aitken (medicine); Mr. Lambert Rogers (surgery); Dr. J. Chassar Moir (obstetrics and gynaecology); Dr. A. A. Miles (bacteriology); Earl J. King, Ph.D. (pathological chemistry).

Dr. Alexander Haddow was reappointed to the Laura de Saliceto Studentship.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Annual Meeting of Fellows and Members

The annual meeting of Fellows and Members will be held at the College in Lincoln's Inn Fields, W.C., on Thursday, November 15th, at 3 p.m., when a report from the Council will be presented. Fellows and Members can obtain copies of the report on application to the secretary, and can, if they so desire, have their names placed on the list of those to whom the report is sent annually. Motions to be brought forward at the meeting must be signed by the mover, or by the mover and other Fellows and Members, and must be received by the secretary not later than November 5th. A copy of the agenda will thereafter be issued to any Fellow or Member who may apply for one.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

A quarterly comitia of the Royal College of Physicians of London was held on October 25th, with the President, Lord Dawson of Penn, in the chair. Dr. J. R. Charles, Dr. C. E. Lakin, and Dr. W. W. C. Topley were elected councillors. Sir Raymond Crawfurd was elected a representative on the Committee of Management, and Sir Comyns Berkeley a representative of the College on the Central Midwives Board.

The College decided to revise the regulations for the Licence so as to preclude the possibility of foreign medical graduates obtaining the diploma, by an indirect channel, with less than three years' clinical study in this country.

The College approved, by an overwhelming majority, a report from its special committee, which was in general agreement with the recent report of the Departmental Committee on Sterilization.

The President announced the following appointments: Dr. F. Ridehalgh, as Prophit Scholar for the Tuberculosis Survey Scheme; Dr. E. L. Middleton, as Milroy Lecturer for 1936; and William Richard Lambert Harrison, late of Epsom College, as Jenks Scholar for 1934.

Membership

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

Henry Howarth Bashford, M.D.Lond., L.R.C.P., Philip Graeme Bentlif, M.D.Camb., L.R.C.P., Stanley George Bradfield, M.B. Sydney, Ernest George Brewis, M.D.Durh., Felix Warden Brown, M.B.Oxf., Sushil Chandra Chatterjee, M.B.Calcutta, L.R.C.P., Hugh Richard Jarvis Donald, M.B.Oxf., L.R.C.P., Cyril Percy Donnison, M.D.Lond., L.R.C.P., Clarence Michael Guiney, M.B.Sydney, John Fulford Jarvis, M.B.Lond., L.R.C.P., Bhagwan Singh Khurana, M.B.Punjab, Frank Graham Lescher, *M.C.*, M.D.Camb., L.R.C.P., Harry Stephenson Lucraft, M.D.Ed., Samuel Nevin, M.D.Belf., Carlyle Thornton Potter, M.D.McGill, Lawrence Orred Roberts, M.B.Lond, L.R.C.P., Ibrahim Shawky, Rupert Sykes, M.B.Lond., L.R.C.P., Padukotah Sreenivasachari Varadarajan, M.B.Madras, Herbert John Williams, M.D.Birm., L.R.C.P., Rupert Allan Willis, M.D.Melb., Frederick James Wright, L.R.C.P.

Licences

Licences to practice were conferred upon the following 123 candidates (including eight women) who have passed the final examination in medicine, surgery, and midwifery of the Conjoint Board, and have complied with the necessary by-laws:

A. S. Amsden, N. Angel, T. G. Armstrong, J. C. Baillie, C. R. Barker, G. Bates, D. M. Blomfield, C. H. T. Bond, A. C. E. Breach, D. M. Bressler, Margaret M. B. Carey, R. C. F. Catterall, F. B. Champion, Dora J. A. Clark, J. H. Ll. Conway-Hughes, T. Csató, R. H. Dale, S. M. Davidson, D. A. Davies, G. B. Davis, E. W. Dunkley, A. G. Edwards, J. K. Elliott, R. S. Ellis-Brown, E. A. Evans, R. Farncombe, A. Fearnley, S. Y. Feggetter, H. P. Fernandes, B. W. Fickling, I. Finer, C. M. Fysh, A. B. F. Gibson, N. C. Griffin, D. Ll. Griffiths, P. K. Guha, W. H. C. M. Hamilton, E. B. Harvey, G. R. Hawkes, C. F. Heys, J. R. Hill, R. C. Hill, A. H. Hunt, R. Hussain, F. Janus, G. O. Jelly, P. G. C. Jones, T. E. Jones-Davies, H. Kaplan, A. R. Kennedy, A. W. Khan, M. D. Kiddon, J. H. Lawrence, B. Lawson, A. P. R. Lewis, J. A. Lewis, S. Lilienfeld, G. M. Lloyd, R. Lyons, J. C. McAvoy, E. B. McDowall, J. G. Mathias, K. M. Mavall, M. L. Meade-King, B. M. Merriman, J. R. Miles, C. Mitchell, Elizabeth C. Morris, J. H. Moseley, R. F. Mowll, S. Mullick, R. M. Noordin, D. G. Oehlers, H. E. Osen, M. L. Pan, Edith A. S. Parry-Evans, H. F. Patrick, S. Paul, W. H. Phillipps, Lilian M. Pickford, F. W. M. Plant, M. R. Preston, Kathleen G. Priestman, A. W. Probert, E. J. Pryn, J. Rapoport, C. Ratnayaka, J. W. Redgate, J. H. Rees, M. G. R. Robinson, J. S. Ross, L. M. Rouillard, A. J. Rouse, B. D. Sachdeva, J. I. Seidman, R. H. Shah, D. B. Shulman, C. W. T. Shuttleworth, J. A. Sidebottom, L. W. Spratt, I. K. Thomas, Nest Thomas, B. Thorne Thorne, T. G. Tregaskis, J. L. Treneman, R. C. H. Tripp, R. J. Vakil, W. Waks, P. A. Walford, H. A. Wallace, F. H. Weston, F. C. H. White, C. T. H. Whiteside, N. Whittaker, S. M. Whitteridge, C. W. K. Willard, E. G. K. Williams, T. M. Williams, W. Wilson, P. L. E. Wood, L. S. F. Woodhead, R. F. Wyatt, Winifred F. Young, R. Clarke, J. R. Dickinson.

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons, to the following:

M. R. Burke, J. O. F. Davies, Joan Goodger, Margaret I. Porteous, K. Rai, A. W. Russell, A. Singh, J. T. Wybourn.

A Diploma in Gynaecology and Obstetrics was granted, jointly with the Royal College of Surgeons, to Hussein Yousri Gohar.

CONJOINT BOARD IN SCOTLAND

The following candidates have been approved at the examinations indicated:

DIPLOMA OF L.R.C.P.ED., L.R.C.S.ED., L.R.F.P. AND S.GLAS.—M. F. Schneckloth, J. L. Jackson, F. Ansbacher, M. Gruenbaum, H. Lipschutz, F. Dannheisser, F. M. Abeles, J. Levy, S. L. Last, L. Wislicki, H. Winter, H. Davidsohn, S. James, P. Rosenthal, H. Goldschmidt, I. H. B. Ghosh, G. Friedlaender, A. B. Sternberg, F. Besser, E. Whyte, O. E. Manasse, K. H. Lepehne, P. L. Rothschild, P. V. J. Soloman, P. A. Printz, C. H. Goldmann, C. H. Straughan, G. Wolff, M. Rakofsky, D. C. L. Stevenson, M. Kraus, A. Ehrlich, W. Cohen, W. Grunstein, H. K. Rosenkranz, R. E. Elkan, J. Pulfer, Ll. R. Studebaker, A. B. Morrison, O. S. Kohnstamm, G. Kosak, Erika Schwabacher, T. C. A. Wilson, F. Auerbach, Else F. Meyer, A. Rosskamm, R. E. Wilson, H. W. Beetham, W. Buky, F. Muller, M. E. Tausend, R. Friedlaender, H. F. D. Whitelaw, T. G. K. Bhagavat, H. Nussbaum, H. Kai-Gee Wong, F. Bernstein, F. Lewy, F. Husain, Y. Carasik.

D.P.H.—J. A. Guy, Barbara C. Welsh, J. W. Brydon, H. A. Raeburn, H. Somerville, J. Macfarlane.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—T. D. R. Aubrey, G. A. Bell, W. McC. Graves-Morris, D. W. Hoodless, A. Lassman, A. G. Manley.

MEDICINE.—J. W. D. Bull, F. M. Kerry, J. A. McClintock.

FORENSIC MEDICINE.—G. A. Bell, J. A. Carter, W. McC. Graves-Morris, C. C. Joannides, O. C. John, J. C. Paterson, D. Rocya-Jones.

MIDWIFERY.—J. H. Bentley, N. Bickford, R. Fleming, C. McK. Johnston, H. N. Levitt, A. Ponder, R. C. Sen.

The diploma of the Society has been granted to T. D. R. Aubrey, G. A. Bell, R. Fleming, A. G. Manley, and **J. A. McClintock.**

Obituary

Sir HAVELOCK CHARLES, BT., G.C.V.O., LL.D., M.D.

Major-General I.M.S. (ret.)

We regret to announce that Major-General Sir Richard Henry Havelock Charles, Bt., G.C.V.O., K.C.S.I., Bengal Medical Service (retired), died in London on October 27th, aged 76.

He was born on March 10th, 1858, the sixth son of David Hughes Charles, M.D., of Cookstown, County Tyrone, and was educated at Queen's College, Cork, and University College, London, subsequently studying in Paris, Berlin, and Vienna. In 1881 he graduated M.D. with honours and gold medal, and B.Ch. in the Royal University of Ireland. He entered the I.M.S. on April 1st, 1882, passing first into the Service, and at Netley gained the Herbert prize as best man of the year, the Montefiore prize in surgery, and the Parkes gold medal in hygiene. He was, as usual, posted to military duty for the first few years, during which period he served with the Afghan Boundary Commission of 1884–6, afterwards writing a *Report on the Hospital Service of the Commission* in 1886. On his return he was appointed professor of anatomy in the Lahore Medical College; in 1894 he was transferred to the same chair in the Calcutta Medical College, and second surgeon to the Medical College Hospital, and subsequently professor of surgery and first surgeon. He became lieutenant-colonel after twenty years' service, and retired on March 20th, 1908.

In 1906 he was placed on special duty with the Prince and Princess of Wales, now Their Majesties the King and Queen, for their tour in India, and appointed physician-in-ordinary to the Prince of Wales. King George, on his accession to the throne in 1910, appointed him serjeant-surgeon to the King, an ancient post which requires the holder to attend the King when he goes on active service. He held this post till 1928, when he resigned it, and was appointed honorary sergeant-surgeon.

On his retirement Sir Havelock Charles was appointed member of the Medical Board of the India Office from December, 1907; on February 28th, 1913, he became president of the Board, and from June, 1916, also medical adviser to the Secretary of State for India. On becoming president of the Board he was promoted to the rank of major-general. He held these offices up to 1923. He had a long list of honours and titular distinctions. In 1894 he became F.R.C.S.I. In 1906 he received the honorary gold medal from the Royal College of Surgeons of England, and was created K.C.V.O. He received the G.C.V.O. in 1912, a good service pension on October 22nd, 1917, the K.C.S.I. on January 1st, 1923, and a baronetcy on January 2nd, 1928. He also received the LL.D. from Queen's University, Belfast, in 1923. He was dean of the London School of Tropical Medicine in 1916, and president of the Society of Tropical Medicine and Hygiene, and a knight of St. John of Jerusalem. He had been a member of the British Medical Association for thirty-six years. As medical adviser to the Secretary of State for India he attended the Annual Representative Meeting at Cambridge in 1920, during the discussion on naval and military business, and thanked the B.M.A. for what it

had done for all the Medical Services, explaining how conditions of pay, service, and pension of the I.M.S. had been greatly improved, mainly owing to the action taken and the support given by the Association and its Naval and Military Committee.

In 1886 he married Gertrude Seton, daughter of Adam Annand Gordon of Aberdeen; she died in 1923, leaving two sons—Allen Aitchison Havelock, captain Royal Fusiliers, who succeeds to the baronetcy, and Noel Hughes Havelock, *M.C.*, who is in the Diplomatic Service.

[The photograph reproduced is by Elliott and Fry, Ltd.]

DAVID ROGER MOIR, M.A., M.B., Ch.B.

Late Surgeon, Hull and Sculcoates Dispensary

We regret to record the death at Thorncliffe House, Hessle, East Yorks, on October 15th, of Dr. David Roger Moir at the age of 60. Dr. Moir had practised in Hull for the past thirty-four years. He was held in the highest esteem by all his colleagues and patients, and had taken a prominent part in the work of the British Medical Association in East Yorkshire.

Dr. Alex. Urquhart, Shepperton-on-Thames, writes: As an old friend, fellow student, and fellow graduate of the late Dr. David R. Moir, I wish to pay a tribute to one who was outstanding not only in sound medical knowledge and skill, but also as a man of quiet but impressive influence upon all with whom he came in contact. We entered Aberdeen University together. He was one of the youngest students of his year, only 15, but he was very high up in the bursary competition, showing marked ability in classics, and gaining a special bursary for the excellence of his Latin papers. In all classes he took a good place, and the M.A. degree in 1893. In the same year we entered Marischal College as medical students, and became still closer companions. As students we joined the Volunteer Medical Staff Corps, and there he laid the foundation for his special interest in ambulance work, in which he became later a lecturer and examiner for the St. John Ambulance Association. All through the medical curriculum he was a hard-working and deep-reading student, and in the practical and laboratory work he was very persevering in mastering all details. Owing to the fact that during his student career he did a great amount of teaching and coaching, he did not take honours, but was generally regarded as one of the best graduates when he obtained his M.B., Ch.B. in 1898. After graduation our ways lay apart. He settled in Hull, where he built up a large practice in the course of the years, and was universally respected both on account of his medical skill and as a man of sterling character. He took his full share in the work of the Hull Royal Infirmary, and as a president of the East Yorkshire and North Lincolnshire Branch of the British Medical Association, the Hull Medical Society, and as surgeon to the Hull and Sculcoates Dispensary. In these capacities he was a friend and helper of all classes, and he gave of his best. It was a disappointment to him that he was unable to serve over-seas during the war, but he was fully employed at home examining disabled men for the Ministry of Pensions and in many other ways. He was kindly, gentle, and sympathetic to all, a real "David" against the "Goliath" of adversity, and a helper of men and women in times of trouble. Dr. Moir was married, and leaves two daughters and a son, who is a medical student in London.

Dr. John Divine writes: In the death of Dr. David Roger Moir, which came as a shock to most of his colleagues, Hull has lost one of a type of men she can badly spare, and the medical profession one who was an exemplar of its purest ethics. He came to Hull in 1900, well equipped for the work of his life. Settling on Hessle Road, where he practised actively till within ten days of his death, he built up a large practice, and to all of his patients, of whatsoever degree, he gave service the same—his best. He early interested himself in the St. John Ambulance Association and Brigade, and up to the last was an active and valued lecturer and examiner.

At the inception of medical benefit under the Insurance Act in the beginning of 1913 he was elected a member of the Local Medical and Panel Committees, and his sound judgement and knowledge of industrial practice aided these committees along with the Insurance Committee in the smooth working of the Act which distinguished Hull, particularly in the very early days, when points of friction were rife. The dark days and years of the war came. Along with others he offered himself for the Army, but was not accepted for active service. The weary four years were filled by him to the brim with work as physician at the Naval Hospital and as medical examiner of recruits at the City Hall. From the end of 1917 till the end of 1919 he was examiner of disabled men for the Ministry of Pensions, and many wrecks of the war will remember with gratitude their passing through his just but kindly hands. He was a good classical scholar, and well and widely read in English literature. Older members of the Hull Medical Society will recall with pleasure his presidential address on Le Sage's doctors in *Gil Blas*. He was an ex-chairman of the Hull and East Yorkshire Division of the British Medical Association, and ex-president of the East Yorkshire and North Lincolnshire Branch, in each position handling well the helm in the interests of the Association and of the public it has to serve. There has gone a good man and a true.

WALTER GEORGE LOWE, M.D., F.R.C.S.

Consulting Surgeon, Burton-on-Trent Infirmary

We regret to announce the death, on October 21st, of Dr. W. G. Lowe, after a long and distinguished professional career at Burton-on-Trent. He had been a member of the British Medical Association for sixty-two years.

Born in 1848, the son of the late Dr. George Lowe of Burton, he received his medical education at St. Bartholomew's Hospital. He graduated M.B.Lond. in 1870, and in the same year obtained the diplomas M.R.C.S., L.R.C.P. Five years later he advanced to the Fellowship of the Royal College of Surgeons by examination, and in 1876 proceeded M.D. From a house-physicianship at St. Bartholomew's Hospital he returned to Burton, where he practised until his retirement in 1921. He was for many years one of the surgeons at Burton Infirmary, and was subsequently elected consulting surgeon. He became a member of the British Medical Association in August, 1872, was president of the Staffordshire Branch in 1886 and 1909, and was a representative at the Annual Meetings of the Association at Swansea in 1903, Oxford in 1904, Leicester in 1905, and London in 1910. He had also been president of the Midland Medical Society in 1898–9.

Apart from his professional activities, Dr. Lowe took a deep interest in many local concerns. His association with the administration of the Education Act continued for thirty years, for he had been uninterruptedly a member of the local authority—first the old School Board, and later the Borough Education Committee—since 1885. When the present Education Act came into force in 1902 he was co-opted a member of the newly constituted education committee for the borough, and became its vice-chairman in 1912. He was for several years chair-

man of the subcommittee in charge of post-elementary school instruction, and took special interest in the work of evening classes, the School of Science and Art, and the public lectures in the Town Hall. He was also a member of the General Purposes, Juvenile Employment, Elementary Education, and School Attendance Subcommittees, and was for some time a governor of the Burton Endowed Schools. He gave great help to various philanthropic enterprises, and, like his father before him, was a strong and active supporter of Holy Trinity Church.

Dr. Lowe was a surgeon colonel of the old 2nd Volunteer Battalion of the North Staffordshire Regiment, and received the Volunteer Decoration. He was a vice-president of Burton St. John Ambulance Association, and put in much work on its behalf. In Freemasonry he attained Provincial Rank, and he had been Provincial Grand Master of the District in the Manchester Unity of Oddfellows. He was president of numerous sports clubs. When he left Burton he had sat on the borough bench of justices for just over twenty years, and had been a county magistrate for nearly as long. He was buried at Birchington-on-Sea, where he lived after retirement.

Dr. Thomas Nash Thomas died at his residence in Solva, Pembrokeshire, on October 22nd, at the age of 74. He had been a member of the British Medical Association for over forty years. He received his medical education at the London Hospital, where he was contemporary with Sir John Lynn-Thomas. After obtaining the M.R.C.S., L.R.C.P., and L.S.A. he settled down in Leicester, where he had a very large practice. So successful was he that at a comparatively young age he was able to retire and to lead the life of a country squire in his native Pembrokeshire. He farmed there on a large scale, but was not allowed to do so for long, inasmuch as his services as a doctor were soon in demand. Dr. Thomas was a master of the art of prescribing. According to the local chemists, his prescriptions were a joy to behold. He deplored the modern habit of tablet prescription. He was a man of wide experience and large sympathies, and his work in Leicester and Pembrokeshire will be long remembered. He leaves a widow, the constant companion and inspiration of his life.

We regret to announce the death, after a long illness, patiently borne, of Dr. Samuel John Cole of Bideford, at the age of 78 years. Dr. Cole was a student at the London Hospital, and qualified M.R.C.S., L.R.C.P. in 1887. He was a Fellow of the Royal Institute of Public Health, and had been a prosector of the Royal College of Surgeons; he also occupied the post of school medical officer of the administrative county of West Suffolk. For a short time he was in practice in Pentonville, London. For many years, owing to ill-health, Dr. Cole was obliged to curtail his activities. During the war he did good work in North Devon by filling the vacancies and carrying on the practices of local medical men who were called up for war service.

The death on October 13th, at Fazakerley Sanatorium, Liverpool, after a very brief illness, of Dr. Brereton George Elliott, removes a lovable personality from the medical profession. He was the son of the late Rev. John Elliott of Armagh, a brother of Dr. John Trimble Elliott of Smithborough, Co. Monaghan, and a nephew of Colonel C. J. Trimble of Preston. Dr. Elliott had his earlier medical career in private practice in Cherrytree and Witton, Blackburn, where he founded the Blackburn Division of the St. John Ambulance Association. During the Great War he saw active service in two theatres. He had been an officer of the 5th Battalion East Lancashire Volunteers, and on the outbreak of hostilities he accompanied the East Lancashire Territorials, as they had then become, to Egypt. Thence he proceeded with them as a combatant officer to Gallipoli, where he was promoted to the rank of major. His health becoming impaired on active service he was returned to Egypt to command a military hospital there; subsequently he served at Kimmel Camp. After the war Major Elliott served for a number of years as a resident medical officer at Fazakerley Sanatorium. In these various spheres of activity he quietly won by his kindly disposition, human sympathy, and administrative wisdom, the respect and affection of his soldiers, colleagues, and nursing staffs in hospital, and of the ex-service men, who had always in him a warm friend. Those who knew him well will always remember his quiet drollery and wit.

W. M. K.

The following well-known foreign medical practitioners have recently died. Dr. Couto, professor of clinical medicine and perpetual president of the Academy of Medicine at Rio de Janeiro, foreign associate of the Académie de Médecine of Paris; Dr. Mario Sabatucci, professor of the Institute of Hygiene of Rome; and Dr. Cecilia Grierson, the first Argentine woman doctor to be qualified (in 1889), who founded the first school for nurses in the Argentine Army and the Argentine Society for First Aid.

Medical Notes in Parliament

[From our Parliamentary Correspondent]

Both Houses of Parliament reassembled on October 30th, when the Commons discussed the Incitement to Disaffection Bill. Mr. Ramsay MacDonald promised a day to discuss the reports made by the commissioners dispatched by the Government to the distressed areas.

The Kenya Native.—On October 30th Sir Philip Cunliffe-Lister informed Dr. O'Donovan that the Governor of Kenya had no doubt that the institution of research on the lines foreshadowed by Dr. H. L. Gordon would assist in the solution of many of the administrative, social, and political problems of the colony, though the state of the colony's finances still made it impossible for the Colonial Government to find the necessary funds. Sir Philip was considering whether there was any means by which the question could be further investigated.

London Refuse.—Sir Hilton Young stated on October 30th that the Advisory Committee on London Refuse had made an interim report dealing with the disposal of house and trade refuse. The Metropolitan Boroughs Standing Joint Committee, of which the committee in question was a subcommittee, has asked for the observations of the Common Council of the City and of the metropolitan borough councils on the report.

Exhaust Fumes in Streets.—Asked to give the result of any recent investigation concerning the effect of exhaust fumes of motor vehicles in crowded thoroughfares, Mr. Hore-Belisha told the House of Commons on October 30th that he had no information to give beyond that conveyed in a statement of July 30th.

Poor Relief in Scotland.—On September 15th, 162,142 poor persons, with 209,535 dependants, were in receipt of poor relief in Scotland. These include vagrants and persons in receipt of outdoor medical relief.

Imported Foods.—Dr. Elliot announces that exporting foreign countries had agreed to reductions in their quotas for shipments of cream and condensed milk to the United Kingdom. Butter is not included in this arrangement. A measure of co-operation has been secured for regulating meat shipments to the United Kingdom till March 31st.

Slum Clearance.—At September 30th, 60,242 houses in clearance areas in England and Wales were included in clearance or compulsory purchase orders submitted for confirmation or in agreements for purchase. The total number of new dwellings approved for rehousing was 54,994, of which 26,926 had been completed, and a further 19,301 were under construction.

Medico-Legal

BUSINESS RELATIONS BETWEEN DOCTORS*

ASSISTANTS AND LOCUMTENENTS

The doctor who contemplates engaging an assistant or locumtenent will naturally satisfy himself that the newcomer is trustworthy and reasonably competent. He should also, however, pay attention to two important legal implications of the relationship. One is that, as the newcomer is his agent in law, he may in certain circumstances be held responsible for damage caused by the negligence of the assistant or locumtenent. (The extent of his liability was discussed in a former article.[1]) The other is that unless the principal and his assistant or deputy make an express agreement to the contrary, there is nothing in law to prevent the latter, on the termination of his contract of service, from practising in the neighbourhood and competing with his former principal.

The only practical way in which a practitioner can avert the great expense and harm that may result if an aggrieved patient brings an action for negligence is to require any registered assistant he employs to be a member of a defence society. He is covered by his own society against claims arising out of the acts of his locumtenent but not those of his assistant, and he will be seriously inconvenienced if his assistant gets into legal difficulties. The intervention of a defence society is, moreover, sufficient in the vast majority of cases to discourage a potential litigant from proceeding any further. He may protect himself—though not his assistant—against claims arising out of the work of his assistant by paying a small extra subscription. The two largest defence societies have a reciprocal agreement by which each will defend a member in an action arising out of the act or omission of an assistant or locumtenent who is a member of the other society. The subject of restrictive covenants has already been dealt with.[2]

It follows that a practitioner who employs an assistant or a locumtenent without entering into a written agreement is taking a great and quite unnecessary risk. Moreover, the contract—like all agreements between medical men—should be drawn up by a solicitor with experience of the legal pitfalls of medical practice. Barnard and Stocker give a useful form,[3] and the British Medical Association[4] suggests that the agreement should contain the following conditions:

1. The assistant to give diligent and faithful service.
2. The assistant to give his whole time and attention to the practice under the direction of the principal.
3. The assistant to receive from the principal periodic payment for his services, at an agreed rate.
4. The assistant to keep just accounts and pay over to the principal all moneys received on behalf of the practice.
5. Provision for a holiday for the assistant.
6. Provision for the determination of the agreement.
7. Period for the duration of the agreement.
8. A restrictive clause as to practice by the assistant during and after termination of the agreement.
9. A provision that both the principal and the assistant should be members of one of the medical defence societies during the whole period covered by the agreement, and also one for the settlement of disputes by arbitration.
10. That if the assistant's name is placed upon the medical list of the National Health Insurance Committee the assistant must agree that *either* the assistant shall not accept any insured person other than in the name of and on behalf of the principal, *or* if any insured persons are accepted in the name of the assistant he shall take every possible means to ensure the transfer of those persons to the list of the principal on the termination of the agreement.

One authority advises the principal to demand from the assistant at the beginning of his service a signed form requesting the transfer to the name of the principal of all patients who have been accepted by the assistant in his own name. He can, if necessary, make use of this form when the contract of service expires.

Assistant with a View to Partnership

When a young man looking for a practice meets an older man who is not quite certain whether or not he wants to sell a part of his interest, the suggestion often arises that the younger shall act as assistant to the older with a view to becoming a partner later on. The British Medical Association recommends a young practitioner to become an assistant with a view to partnership, regarding this as a good and practical way of making himself familiar with the work of the practice. Moreover, it gives the older man an opportunity of assuring himself that the young man will make the kind of partner he wants. The arrangement seems, on the face of it, a good one, but Barnard and Stocker do not recommend it. These authors say that, as a matter of experience, only about one assistant in every twelve who begin with partnership in view ever becomes a partner. If, they suggest, the principal really wants the assistant as a partner, and the assistant really wants and can afford to become a partner, and they agree on the terms of the partnership articles before they start work together, there is no fault to be found with the arrangement. Unfortunately, one of its chief attractions is that it gives both parties an excellent pretext for shelving the difficult and delicate task of settling terms of partnership. The fulfilment of the project is occasionally, they say, prevented by some unforeseen circumstance, but more usually because one of the parties becomes conscious of an objection about which he could equally well have made up his mind at the outset. The disadvantages to the principal of an abortive attempt of this kind are that the practice suffers a decrease in value; to the assistant they are that to work for a considerable time, to find everything satisfactory, and then to be refused a partnership after all is annoying and may be discouraging.

Doctors contemplating this relationship must therefore form their own opinion on whether the risk is one which they care to take. Where the parties are practically certain that they want to enter into partnership together, they may find it useful to make an agreement to do so on a certain date, with a stipulation that if either refuses to do so without good and sufficient cause he will pay to the other a named sum as damages. The following point is serious enough to deserve memorizing. If an assistant is wrongfully dismissed the courts will probably hold that, as the employer has broken an important term of the contract, the whole contract is at an end. The natural consequence is that the restrictive covenant no longer binds the assistant (General Bill Posting Company *v.* Atkinson, 1908) and he is free to come and set up in practice as near his ex-principal as he likes. A doctor who wishes to dismiss his assistant should therefore be very careful not to run the risk of breaking his contract in doing so. It may, in fact, be well worth his while to seek legal advice before he takes any drastic step. A competitor who combines a strong personal grievance with an intimate knowledge of the practice is able to be a disturbing factor in any doctor's environment.

Under the Workmen's Compensation Acts an employer is bound in certain circumstances to compensate a "workman" for personal injury, and "workman" includes anyone who has made a contract of service. A doctor employing an assistant or locumtenent at a salary should therefore remember to insure himself against the risk of having to pay compensation under these Acts. If, however, the assistant or locumtenent is receiving more than £350 a year, he is not a "workman."

An assistant who is remunerated by receiving a share of the profits has a right to overhaul his employer's accounts and books, although he has none of the other rights of a partner. A practitioner may enter into an agreement with the widow of a deceased practitioner to carry on the practice for her for a salary, she to be

* The first of these articles, by a legal correspondent, appeared on June 9th, 1934 (p. 1053), the second on June 23rd (p. 1145), the third on July 7th (p. 42), the fourth on July 21st (p. 141), the fifth on September 22nd (p. 574), the sixth on October 6th (p. 660), and the seventh on October 20th (p. 750).

[1] *British Medical Journal*, 1933, i, 1029.
[2] Ibid., October 20th, 1934, p. 750.
[3] *Medical Partnerships, Transfers, and Assistantships*, 1913, p. 59.
[4] *Handbook for Recently Qualified Medical Practitioners*. British Medical Association. (3s. 6d.)

financially responsible for the practice and to take the profits. If, however, she interferes with the conduct of the practice or practises herself, the General Medical Council may consider him to be guilty of the offence of "covering" an unqualified person and remove his name from the *Register*. Such arrangements, according to one large defence society, do not usually work well for very long.

A locumtenent[5] is the confidential agent of his employer and is bound in law, as well as in honour, to try to serve the interests of his practitioner and to maintain a good relationship with patients and the other doctors of the neighbourhood as assiduously as though he himself were the owner of the practice. He may make no profits of any kind from the work other than that which he has agreed to accept from his principal, and if he retains for himself any money given him in return for professional services, he is not only liable to pay his principal damages to the value of this unlawful profit, and the costs of the action, but may also be prosecuted under the Prevention of Corruption Act, 1906, which lays down that an agent, on pain of fine or imprisonment, may not accept for himself any profit without the knowledge of his principal. It is grossly unethical for a locumtenent to set up in practice in a place to which he has first come in that capacity, but it is only a legal wrong if he has signed a covenant binding him not to do so.

Medical News

On Tuesday, November 6th, Professor F. A. E. Crew of Edinburgh will deliver the Lloyd Roberts Lecture, on "Medicine and the Further Evolution of Society," at the Manchester Royal Infirmary.

The annual general meeting of the West Riding Association of Graduates of the University of Edinburgh will be held at the Great Northern Hotel, Leeds, on Wednesday, November 14th, at 6.45 p.m. The annual dinner will follow at 7.30. The guest of the evening will be Mr. John Wheeler Dowden. Graduates please take note of this date. Applications for further information to the honorary secretary, 33, Manor Row, Bradford.

The Glasgow University Club, London, will dine at the Café Royal, Regent Street, W., on Friday, November 23rd, at 7.30 p.m., with Professor Alexander Macphail in the chair. Any Glasgow University men who, though not members of the club, desire to attend are asked to communicate with the honorary secretaries, 62, Harley House, N.W.1.

A public lecture under the Chadwick Trust, on "Fifty Years of Public Health Progress," will be given by Dr. Matthew B. Ray at Huddersfield Technical College on Friday, November 9th, at 7.30 p.m.

A lecture on the theory and practice of contraception will be given to medical practitioners and students who have completed their gynaecological course by Dr. Gladys Cox on November 16th, at 6 p.m., at the Walworth Women's Welfare Centre, 153A, East Street, S.E.17. Demonstrations will be given on November 23rd and 30th at 6 p.m. and 7 p.m. (those attending are asked to bring rubber gloves). To cover expenses of lecture and demonstration a fee of 5s. is charged. Tickets admitting to the lecture are to be applied for in advance.

The 1934-5 session of the West Kent Medico-Chirurgical Society opened on October 12th at the Miller General Hospital with the annual general meeting. The following lectures have been arranged: November 9th, Mr. G. John Sophian, "Physiology and Pathology of Menstruation"; December 14th, Sir Humphry Rolleston, "Shifting Sands of the Architecture of Medicine"; February 8th, 1935, Dr. H. Stanley Banks, "Serum Treatment of Scarlet Fever, Diphtheria, and Measles"; March 8th, Mr. A. Lawrence Abel, "Common Diseases of the Rectum and Anal Canal." On April 12th there will be a debate on "That Surgery is the Method of Election for the Treatment of Peptic Ulcers." For the motion, Mr. C. A. Joll, seconded by Dr. H. V. Morlock; against, Dr. Harold Pritchard, seconded by Mr. R. C. B. Ledlie.

The following lecture-demonstrations have been arranged by the South-West London Post-Graduate Association at St. James's Hospital, Ouseley Road, S.W., on Wednesdays at 4 p.m.: November 7th, Dr. W. G. Wyllie, "Pulmonary Fibrosis and Bronchiectasis in Children"; November 14th, Dr. Stanley Wyard, "Tuberculosis in Children"; November 21st, Dr. C. E. Lakin, demonstration of medical cases; November 28th, Dr. Braxton Hicks, "Some Mutual Difficulties of the Clinician and the Pathologist"; December 5th, Mr. Y. Z. Cope, demonstration of surgical cases; December 12th, Mr. L. Phillips, "Some Medical Aspects of Gynaecology."

A course of three lectures on "Newer Aspects of Gastritis and its Consequences" will be given by Dr. Knud Faber, professor of medicine in the University of Copenhagen, at Guy's Hospital Medical School, London Bridge, S.E., on November 6th, 8th, and 9th, at 5 p.m. Dr. Arthur Hurst will take the chair at the first lecture. Admission free, without ticket.

The 1934–5 session of the North London Medical and Chirurgical Society opened on October 10th, when Dr. H. Letheby Tidy gave an address on some modern views on anaemia. The programme includes clinical demonstrations on November 15th, 1934, and February 14th, 1935, and the following addresses: December 14th, Dr. Rubens Wade, "Some Aspects of Anaesthesia"; January 16th, 1935, Sir William Willcox, "Common Functional Disorders of the Liver"; March 13th, Mr. Eric Lloyd, "Scoliosis."

The Cancer Hospital (Free), Fulham Road, S.W., announces that a series of lectures on cancer will be given in the lecture theatre of the hospital on Thursdays at 4 p.m. from January 3rd to April 11th, 1935, inclusive. No charge is made for attendance at the course, which is open only to medical practitioners.

A discussion on the bed-bug as a housing problem will be introduced by Mr. A. W. McKenny Hughes at a meeting of the Royal Sanitary Institute at 90, Buckingham Palace Road, S.W., on Tuesday, November 13th, at 5.15 p.m., when Lord Balfour of Burleigh will preside. The opening paper will deal with the disinfestation of houses and furniture, and the prevention of infestation.

At the official opening ceremony of the West Lane Hospital Nurses' Home, Middlesbrough, on October 30th, the mayor said that the past year had been memorable, especially in regard to hospital and public health services generally, both at the Holgate Municipal Hospital and at the Poole Sanatorium, as well as at the hospital in West Lane. He paid a warm tribute to Dr. C. V. Dingle, the medical officer of health, who had worked for several years towards the fulfilment of a scheme to provide these necessary extensions.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that lecture-demonstrations will be given at 11, Chandos Street, W., on November 6th and 13th at 2.30 p.m. In the series of lectures on diet and dietetics, on Wednesdays at 8.30 p.m., at 11, Chandos Street, W., Dr. E. G. B. Calvert will speak on diet of the diabetic, on November 7th, and Dr. F. W. Christie on diet of the obese and thin, on November 14th. On November 10th, at 3 p.m., there will be a special demonstration of surgical cases by Mr. C. E. Shattock, at the National Temperance Hospital, Hampstead Road, N.W. Forthcoming courses of instruction include venereal disease at the London Lock Hospital, November 12th to December 8th; gynaecology at the Samaritan Hospital, November 17th and 18th; proctology at St. Mark's Hospital, November 19th to 24th; and an evening course in rheumatism at the British Red Cross Clinic on Tuesdays and Thursdays from November 20th to December 6th. A special M.R.C.P. course in diseases of the chest will be given at the Brompton Hospital between December 17th and January 11th. A panel of teachers is available daily for individual tuition in various branches of medicine and surgery.

[5] B.M.A. *Handbook for the Newly Qualified*, 1923, p. 11.

The first Rumanian Congress of Medical Radiology and Electrology will be held at Bucarest from November 8th to 10th under the presidency of Dr. Severeanu. The subjects for discussion will be cholecystography, *x*-ray diagnosis of intrathoracic tuberculosis, radiotherapy of mammary cancer, and actinotherapy of erysipelas. The general secretary is Dr. G. N. Giurea, Str. Stirber Voda 108, Bucarest.

The council of the University of Manchester has equipped a laboratory of surgical research at 20, York Place, immediately adjacent to the Royal Infirmary. Applications to work in the laboratory should be made in the first instance to Professor E. D. Telford.

The High Commissioner for India has been asked by the Indian Research Fund Association to invite applications for the post of Director of Nutritional Research at Coonoor, in the Madras Presidency. Candidates must be graduates in medicine with a wide experience of nutritional research, both in the field and in the laboratory, who have made original contributions on the subject. They must be of sound constitution, and not more than 45 years of age. A notice giving further particulars appeared in the advertisement columns of the *British Medical Journal* of October 13th (p. 50). Applications must be made on the prescribed form, copies of which can be had from the High Commissioner, India House, Aldwych, W.C.2. Completed forms must be received by November 30th.

Professor Sudhoff of Leipzig, who recently celebrated his eighty-first birthday, has resumed the editorship of the journal which is henceforward to be known as *Sudhoffs Archiv für Geschichte der Medizin und der Naturwissenschaften*, in collaboration with Professor Dr. J. D. Achelis.

A square in front of the Salpêtrière, Paris, has recently been named after the late Mme Marie Curie.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

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Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Aerophagy with Meteorism

"PERPLEXED" asks for suggestions regarding a case of aerophagy in a man, aged 40, with ensuing meteorism. The condition is always worse when the patient is excited or nervous, and occasionally occurs after a long railway journey. There is marked distension of the abdomen, and intense discomfort. After a couple or hours or so the air becomes gradually expelled, per rectum. Nothing organic can be discovered.

Treatment of Ménière's Disease

"INQUIRER" writes from Northern Ireland: Could any of your readers suggest treatment for a case of Ménière's disease? The patient is a man of about 50, and has been suffering from this complaint for from three to four years. Bromides and luminal appear to have little, if any, effect on the onset of attacks.

⁂ An annotation on this subject was published in the *Journal* of October 27th (p. 779).

Trichophyton Infection

Dr. J. F. BRISCOE (London S.W.1) writes: Tinea tonsurans in the Victorian age was a most common malady of children's heads, and if not treated promptly became an intractable complaint. The fungus in chronic cases, growing deeply, resisted ordinary medicaments. At one of our large public schools glacial acetic acid was introduced as an ideal remedy, and the acid was well rubbed in, perhaps once, or maybe twice. If it was a small patch the drug proved effective. At that period, too, short of blistering, many cases gave prolonged trouble. To-day, disease is caught so early that ringworm can be readily dispatched, since children's heads are now "drilled" at and after school hours. Moreover, in my opinion, singeing the scalp may interrupt the growing spores and the filamentary mycelium threads, and I am positive it stays baldness. Dhobi itch, and all the contagious tineas, may be treated successfully in the same routine method as tinea tonsurans. With the acetic acid, white precipitate ointment, even an application of liquor potassae, and hyposulphite of soda in tinea versicolor are remedies out of fashion which are not to be despised. Changing linen and woollen vests, and especially the pants, needs careful attention; while trousers long warn are like the old women's petticoats, needing the sterilizing chamber. To be certain of success the secret of the treatment of all the fungoid eruptions of the skin is to get your application below the epidermis.

Income Tax

Payment of Annuity

"J. B." writes: About three months ago I wrote to you about a claim for repayment of income tax by a relative to whom I pay an annuity. I would like to let you know that I followed the advice you were good enough to give me in the *British Medical Journal* for July 14th (p. 98). A reply has just come from Somerset House to the effect that they agree with the inspector that, having regard to the form of the agreement, the annuitant was not entitled to the repayments in question, but they do not think that in the circumstances they can claim a refund of the amounts overpaid. "No further application for a refund will therefore be made." May I offer my sincere thanks for your help in the matter.

Motor Car Replacement

"E. B." has had the following car transactions in 1933–4: On April 1st, 1933, he owned a 12-h.p. "A" car, written down value £41; on April 25th he sold it for £70 and bought an 18-h.p. "T" car for £295; in June he sold the "T" car for £225 and bought an "S" (new) car for £235; in November he sold that car for £90 and bought an "A" car for £30. He has been allowed £40 for the loss on the "T" car and £30 for the loss on the "S" car.

⁂ The latter item (£30) is, of course, much less than the loss incurred on the "S" car, which was £235 – £90 = £145. The difficulty is that the allowance is not specifically for the loss on the car replaced, but is for the expenditure on the new car—to the extent of the loss incurred on the old one. As £30 only was spent on the purchase of the last car, that limits the allowance in respect of the replacement of the new "S" car to that sum.

"W. H." runs two cars; one is an 8.3-h.p. "R" car, bought second hand for £35, and he intends to sell it for, say, £15, and buy a new 9.8-h.p. "H" car for £179. What is his best course as regards income tax allowances?

⁂ He can claim a replacement allowance of (£35 – £15 =) £20 as an expense of the year 1934. That, however, will preclude him from claiming the depreciation allowance of (£179 at 22 per cent. =) £39 for 1935–6. He can, however, claim that allowance—that is (£140 at 22 per cent. =), £21, for 1936–7, and so on for future years. When the "H" car is replaced he should claim obsolescence allowance—that is, £179 less the amount received on sale

and less the aggregate depreciation allowances, but *excluding the non-effective allowance for 1935-6*. He will then have received the full amount due in law and in equity.

Private Motoring Expenses

"J. F. M." has in the past been allowed running expenses and wear and tear in respect of his car; the inspector of taxes suggests that one-tenth of each kind of deduction should be treated as applicable to private use. Should the wear and tear allowance be added to the expenses claimed, which cover the whole cost of running, etc.?

*** Whether one-tenth is reasonable or excessive depends on the extent of private use of the car, and varies so much that no rule of thumb is of much use as a guide. If that is a fair ratio it does apply to the wear and tear allowance as well as to the out-of-pocket expenses. That allowance is correctly treated as an addition because it is in anticipation (wholly or in part) of the cost of replacement.

Expenses of an Attack of Scarlet Fever

"E. M." contracted scarlet fever in the course of discharging his professional duties; are the resulting expenses allowable?

*** We fear not, though the point is not beyond doubt. The statute forbids the deduction of sums "not being money wholly and exclusively laid out or expended for the purposes of the . . . profession." In such a case as this it is arguable that the expenses are incurred because the practitioner cannot exercise his profession, and the word "exclusively" is awkward to get round in this connexion. The Board of Inland Revenue allows the cost of the services of a locumtenent, but that is as far as it is apparently willing to go. The deduction is worth claiming, but we could not advise "E. M." to carry his point to appeal.

Purchase of Practice

"G. H." purchased a practice in May, 1934; prior to that he was employed as an assistant elsewhere. He has had a notice of assessment for 1934-5, apparently based on the estimated profit of the practice.

*** He is chargeable to tax (*a*) under Schedule D, on the current year's earnings; (*b*) under Schedule E, on the previous year's basis for the proportion of the year to the date when his employment ceased. Thus suppose it ceased and he took over the practice as at May 5th, 1934, then he is liable (*a*) on the earnings for the eleven months to April 5th, 1935, and (*b*) on 1/12 of his employment earnings for the year to April 5th, 1934.

Surgery, etc., at Private Residence

"W. H. H." pays rent and rates amounting to £110 + £31 = £141, and hitherto has been allowed one-half of that expense as applicable to professional purposes. The local inspector of taxes now claims to restrict it to two-fifths —that is, £57—and "W. H. H." is considering the question of an appeal.

*** It is difficult in this sort of case to give definite advice, as so much depends on the exact circumstances—for example, the amount of rent which covers the garage, whether the "professional" maid has a separate room, etc. One useful criterion is whether the three-fifths borne privately is reasonable—for example, would the practitioner obtain similar private accommodation for £84 rent and rates to that which he enjoys now? A formal appeal is probably not worth while, but a personal discussion of the details with the inspector might be useful.

LETTERS, NOTES, ETC.

Infantile Eczema

Dr. R. Chalmers (Darlington) writes: In a review in the *Journal* of October 13th (p. 680) you quote the findings of Dr. Péhu and Dr. Aulagnier, both of Lyons, as to the aetiology of the condition referred to above—namely, an allergic condition due to an enterococcus, which these workers treat with a vaccine. An experience I had in June, 1932, may be of interest in this connexion. A baby, about 9 months old, was brought to me covered with eczema from head to foot. The history was that it had been quite well until it went to the seaside a week or so before. No change had been made in feeding. The urine was alkaline, and showed organisms ++. I put the child on to mist. acid. sodii phos. cum hexamine, with tab. parathyroid (1/20 grain) daily, calamine lotion to the skin, and only olive oil to be used in place of soap and water for cleansing. In one week the whole condition had entirely cleared up.

An Irish Medical MS.

Dr. Winifred Wulff (Templeogue, Co. Dublin) writes: I should like to thank you for the kind notice of my book, *A Handbook of Gynaecology and Midwifery* (Irish Texts), which appeared in your issue of September 22nd (p. 555). There is one point I should like to make clear. Your reviewer does not appear to realize that the Irish version of *Trotula* and John of Gaddesden is a faithful translation —indeed, a literal translation, except in a few minor details—of the Latin as it appears in the printed edition, and which is here printed side by side with the Irish. Since the Irish translation was made, as your reviewer correctly states, some two hundred years before the Latin edition was published, it is interesting to note how closely the translator has kept to the original Latin manuscript. As the book is intended for scholars it was not considered necessary to translate either the Latin or the Irish into English.

Eustace Smith's Sign

Though in itself of little practical value, the above sign is a good example of a single eponym striving to capture the personality of a man who has left his mark on a multitude of scientific problems. It was first described in a short paper entitled "On the Diagnosis of Enlarged Bronchial Glands in Children" in the *Lancet* (1875, ii, 240), and consists in a venous hum heard over the upper part of the sternum when the child bends back its head. The original description is quoted by Dr. W. R. Bett in the current issue of the *British Journal of Children's Diseases* (July-September). Eustace Smith was one of the first physicians in this country to specialize in children's diseases, and for forty-three years he was associated with the East London Hospital for Children, Shadwell. He was a fine clinician and a skilled percussor, whose deft touch remained unimpaired till the very end. A faithful believer in drugs, he was fond of big doses. His emphasis in a doubtful case of whooping-cough on the disproportion between the violence of the cough and the signs in the chest is still regarded as a useful aid to diagnosis. The culminating point in his career was his election to the presidency of the Children's Section at the International Congress in 1913.

Corrigenda

In the footnote to our review of Harrow and Sherwin's *Chemistry of the Hormones* (October 27th, p. 773) the price of the book was given as 1s. 6d. This should have been 11s. 6d.

Dr. A. J. Hawes wishes to correct a slip in his article on the death of Mauriceau's sister published last week (p. 782). The title of the book referred to is *De la Perte de Sang*.

Boots Pure Drug Co. Ltd., Nottingham, have issued a well-illustrated booklet on "bismostab," their 20 per cent. suspension of bismuth (*B.P.*) in isotonic glucose solution, for injection in cases of spirochaetal diseases. A feature is the complete course outlined for the routine treatment of adult syphilis with this preparation by the "concurrent" and "alternate" methods. A copy will be sent free of charge to medical men who apply.

The Medical Supply Association Limited (Gray's Inn Road, and 95, Wimpole Street) have issued two new booklets, one on electrotherapy apparatus and the other on the "medisun" lamp ultra-violet ray generator. Copies will be sent on request to any medical practitioner or accredited assistant.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 55, 56, 57, 58, 59, 62, 63, and 64 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 60 and 61.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 236.